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## CHAPARRAL SKILL RETENTION

Joyce L. Shields  
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and  
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TRAINING TECHNICAL AREA

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March 1979

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**March 1979**

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**Performance-Based  
Training**

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# RI-RRS

## FOREWORD

The Training Technical Area of the Army Research Institute for the Behavioral and Social Sciences (ARI) has actively pursued a program of research in support of the systems engineering of training. A major focus of this research is to develop the fundamental data and technology necessary to field integrated systems for improving individual job performance. Such systems include Skill Qualification Testing (SQT), job performance aids, training courses in schools and in the field, performance criteria, and management and feedback systems. This report is the first of several on specific topics in the area of skill retention; ARI Technical Paper 313 provided a review of the general area. The long-term goal is to develop a method for predicting the rate of proficiency loss for all types of skills, in response to requirements by the Deputy Chief of Staff for Training of the Army Training and Doctrine Command (TRADOC). The work was accomplished by ARI personnel under Army Project 20163731A770, FY 1978, "Performance-Oriented Individual Skill Development and Evaluation" for the Training Developments Institute, TRADOC, with the combined support of the Deputy Chief of Staff for Training, TRADOC; the Deputy Chief of Staff for Operations of the Army, Europe; and the Commander, U.S. Army Air Defense Center and Fort Bliss, Fort Bliss, Tex.

*Joseph Reiner*

JOSEPH REINER  
Technical Director

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## CHAPARRAL SKILL RETENTION

### BRIEF

#### Requirement:

To evaluate retention of Chaparral skills and determine the most effective schedule of refresher training.

#### Procedure:

Six Chaparral tasks included in the Soldier's Manual were selected for evaluation. Hands-on performance tests were developed and validated. All tasks were performed using the appropriate Technical Manual.

The research design divided 99 soldiers into three experimental groups. In all groups, soldiers were tested immediately following Advanced Individual Training (AIT) completion, tested and trained to standard upon arrival in one of seven Chaparral battalions, and re-tested 4 months after arrival and training in the unit. In addition, one group of soldiers was retested and trained 1 month after their first test and another group 2 months after their first test. The third group was given no additional testing or refresher training.

#### Findings:

Performance testing and enforced use of job aids appear to be promising ways to maintain task proficiency. Performance declined slowly over the time intervals in this research. The procedures used in this research effort forced the individual to use the appropriate Technical Manual to perform the test task. The required frequency of training to maintain proficiency in these tasks would probably be much greater without the use of the "job aid." Feedback given to soldiers following task performance at the end of AIT apparently provided training so that performance improved over the interval between AIT and first unit testing.

#### Utilization of Findings:

Use of job aids facilitates skill retention and reduces the need for refresher training. Results are expected to generalize into other situations, as findings were basically the same for all tasks.

## CHAPARRAL SKILL RETENTION

### CONTENTS

|  | Page |
|--|------|
| INTRODUCTION . . . . .                           | 1    |
| OBJECTIVES . . . . .                             | 2    |
| PROCEDURES . . . . .                             | 2    |
| RESULTS . . . . .                                | 3    |
| AIT-Unit Interval . . . . .                      | 4    |
| Performance in the Unit After Training . . . . . | 4    |
| CONCLUSIONS . . . . .                            | 4    |
| TECHNICAL SUPPLEMENT . . . . .                   | 9    |
| Method . . . . .                                 | 9    |
| Results . . . . .                                | 11   |
| APPENDIX. SQUAD LEADER'S GUIDE . . . . .         | 17   |
| DISTRIBUTION . . . . .                           | 85   |

### LIST OF TABLES

|   |   |
|---|---|
| Table 1. Performance tests, SM reference, and CM AIT standard . . | 2 |
| 2. Chaparral skill retention design . . . . .                     | 3 |
| 3. Numbers of subjects with usable data in each category . .      | 4 |

### LIST OF FIGURES

|  |   |
|--|---|
| Figure 1. The average percentage of performance measures passed on each test at AIT and on first test in the unit . . .  | 5 |
| 2. The average percentages of performance measures passed at 1-, 2-, and 4-month intervals after initial training in the unit (trained once) and at 1- and 2-month intervals after the second training in the unit (trained twice) . . . . . | 6 |

CONTENTS (Continued)

|  | Page     |
|--|----------|
| <b>Figure 3. Percentages of soldiers passing each test at 1-, 2-, and 4-month intervals after initial training in the unit and second training in the unit (trained twice) . . . . .</b> | <b>7</b> |

## CHAPARRAL SKILL RETENTION

### INTRODUCTION

The Army's primary peacetime mission is to maintain a state of readiness to engage effectively in combat on short notice. To accomplish this objective, soldiers must acquire and maintain proficiency in job skills ranging from the most complex electronic weapons systems to sidearms. The U.S. Army Training and Doctrine Command has identified skill deterioration as a critical problem in training. Since skill deterioration reduces levels of readiness, the Army must obtain and use the resources necessary to maintain job proficiency continuously at high levels. However, there is limited knowledge about the rate of skill deterioration or retention for specific Army jobs.

The research literature on skill retention<sup>1</sup> suggests that the most important determiner of retention is level of original learning. Procedural tasks are forgotten rapidly. Time to retrain individuals to original performance levels generally is rapid, and learning and retention benefit from test-taking opportunities. However, little specific information can be used directly by Army commanders and trainers to determine

1. What the most efficient procedures to acquire and maintain proficiency are;
2. How often tasks have to be performed, evaluated, or trained to ensure performance to standard when required; and
3. How the commander should intervene if a task is performed infrequently and not evaluated in regular activities.

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A major research program within the Army Research Institute (ARI) is directed toward defining these procedures. The initial research project within this program concerns the acquisition and retention of selected Chaparral missile crewmen skills.

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<sup>1</sup>Schendel, J., Shields, J. L., & Katz, M. S. Retention of Motor Skills: Review (Technical Paper 78-313). Alexandria, Va.: U.S. Army Research Institute for the Behavioral and Social Sciences, September 1978.

## OBJECTIVES

The objectives of this research were to (a) evaluate retention of Chaparral skills between training in school and utilization on the job, (b) determine the effect of refresher training, and (c) provide substantive data on forgetting over time on the job.

## PROCEDURES

Personnel in U.S. Army Europe (USAREUR) battalions were interviewed to determine which critical Soldier's Manual (SM) tasks most likely would be assigned to a recent graduate from Chaparral Advanced Individual Training (AIT). The six tasks selected for research are listed in Table 1 with the Soldier's Manual reference and AIT Commander's Manual (CM) standard.

Table 1  
Performance Tests, SM Reference, and CM AIT Standard

| Test | Task   | SM<br>Task Ref # | CM<br>AIT STD |
|------|--|------------------|---------------|
| 1.   | Pre-energizing the M-54 launch station   | 1042             | Qualify       |
| 2.   | Energizing the M-54 launch station   | 1042             | Qualify       |
| 3.   | De-energizing the M-54 launch station  | 1042             | Qualify       |
| 4.   | Before operations PM checks on the M730  | 1044             | Familiarize   |
| 5.   | Installing and operating the TA-312/PT telephone set                               | 1022             | Qualify       |
| 6.   | Emplacing, operator checks, and adjusting target alert data display set AN/GSQ-137 | 1037             | Familiarize   |

Hands-on performance tests were developed and validated for each of these tasks. The tests (in the appendix) required the performance of each task, using the appropriate Technical Manual (TM) reference as required on the job. These tests differ from tests administered during AIT. AIT tests include hands-on items but do not evaluate the soldier on the total task performance using the appropriate TM reference.

The research design divided 99 soldiers into three experimental groups (Table 2). In all groups, soldiers were tested immediately following AIT completion, were tested and trained to standard upon arrival in one of seven USAREUR Chaparral battalions, and were retested 4 months after arrival and training in USAREUR.

Table 2  
Chaparral Skill Retention Design

| Experimental group | AIT complete | ARR in unit | Unit +1 mo | Unit +2 mo | Unit +3 mo | Unit +4 mo |
|--------------------|--------------|-------------|------------|------------|------------|------------|
| 1                  | Test         | TTT         | TTT        |            |            | Test       |
| 2                  | Test         | TTT         |            | TTT        |            | Test       |
| 3                  | Test         | TTT         |            |            |            | Test       |

Note. TTT = Test/Train/Test

Group 1 soldiers were retested and trained 1 month after their first test, and Group 2 soldiers 2 months after their first test. Group 3 soldiers were given no additional testing or training.

The research program was a model performance-oriented testing and training system. The individual soldier's squad leader performed the testing and training in USAREUR. To assist the units, a Squad Leader's Guide (appendix) was prepared, and special training assistance visits were provided. Squad leaders learned to perform the six tasks selected for research; they also learned how to conduct and score the performance tests; select required refresher training when soldiers failed a particular test item; supervise practice; prepare equipment; and give an effective demonstration. Two researchers, fully qualified in the Chaparral missile system, supervised the collection of data and provided training assistance and quality control throughout the data collection period.

#### RESULTS

For each test, the performance scores were compared to determine the effect on task proficiency of

1. the interval between AIT and first testing in Germany,
2. the time in unit after formal training to standard (100% criterion), and
3. the number of refresher training experiences and time since last refresher.

#### AIT-Unit Interval

Figure 1 shows the average percentage of performance measures passed on each test at AIT and on the first test in the unit. In general, the elapsed time between AIT and testing in the unit did not degrade the soldier's performance. On the contrary, performance improved slightly (although it was not statistically significant) during the AIT-unit interval for four tests. Soldiers may have learned from the AIT research test administration. Soldiers tested at AIT were told whether or not they received "GO" scores on the test (passed all performance measures). Those who failed some performance measures were told of their errors. Because it was impossible to control intervening activity, the improvement in performance could have other interpretations.

#### Performance in the Unit After Training

After soldiers were trained to perform the tasks to standard (100% criterion) using the appropriate Technical Manual, small decreases in performance over the 4-month interval occurred. The average percentages of performance measures passed at 1-, 2-, and 4-month intervals after initial training in the unit and refresher training are shown in Figure 2. Soldiers continued to perform at a high level over the 4-month interval. The information presented in these retention curves suggests that once soldiers learned to perform the task to standard (100% criterion) using the Technical Manual, they continued to perform to standard or close to standard over the 4-month interval of this research. The average scores made on the tasks never dropped below 80% of the performance measures passed. The percentages of soldiers passing all performance measures for each test (GO) are shown in Figure 3.

#### CONCLUSIONS

Performance did not decline between AIT and arrival in unit. After arrival in unit, performance decreased gradually over the time intervals in this research.<sup>2</sup> The procedures used in this research effort forced the individual to use the appropriate Technical Manual to perform the test task. Soldiers using this "job aid" maintained a high level of performance. The required frequency of training to maintain proficiency in these tasks probably would be much greater without the use of the job aid. Failure to show significant decreases in performance between AIT and first unit testing may be due to the

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<sup>2</sup>The use of a more sensitive performance measure, such as time to complete task, might have shown greater decrements in performance in these intervals.

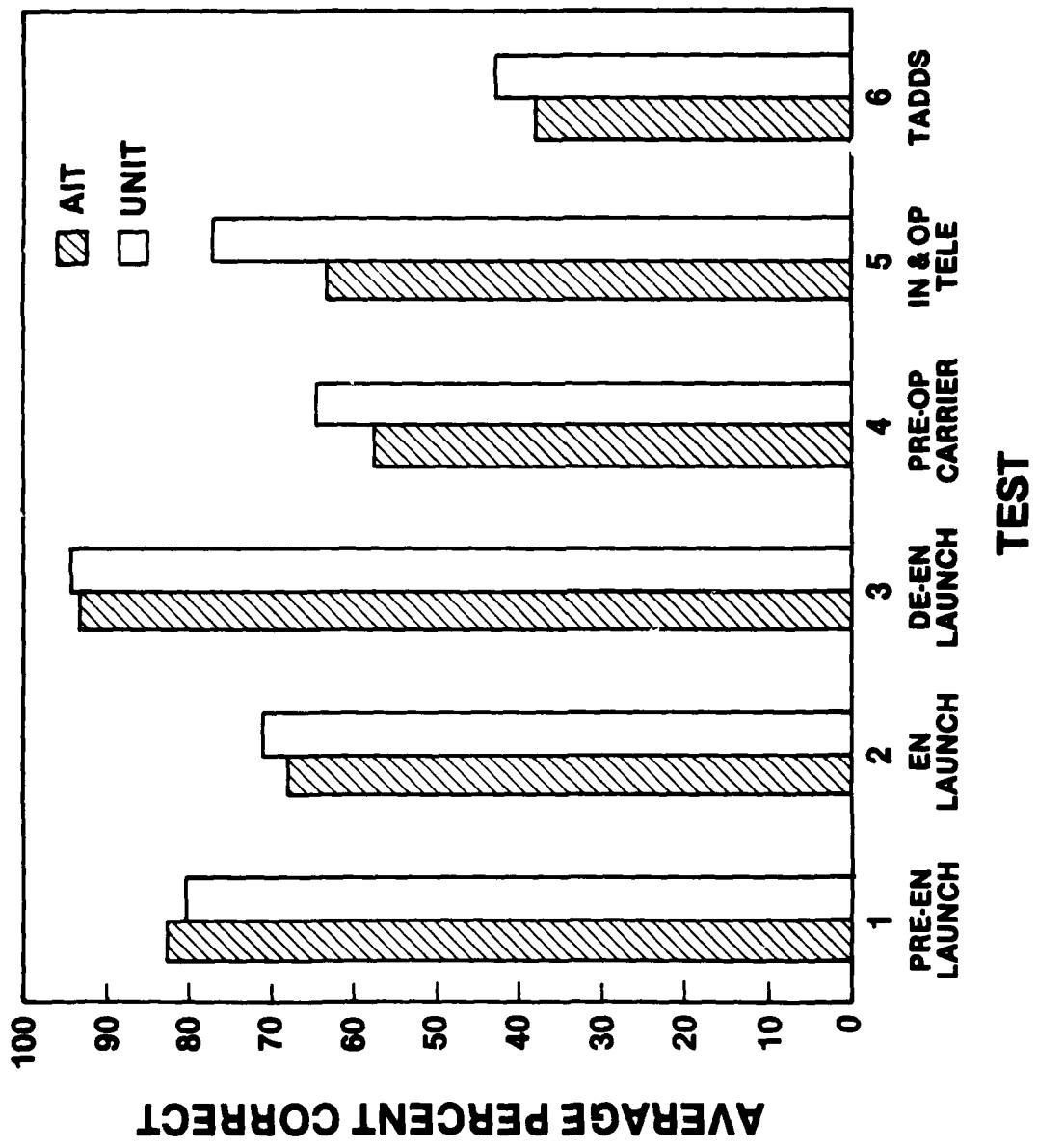


Figure 1. The average percentage of performance measures passed on each test at AIT and on first test in the unit.

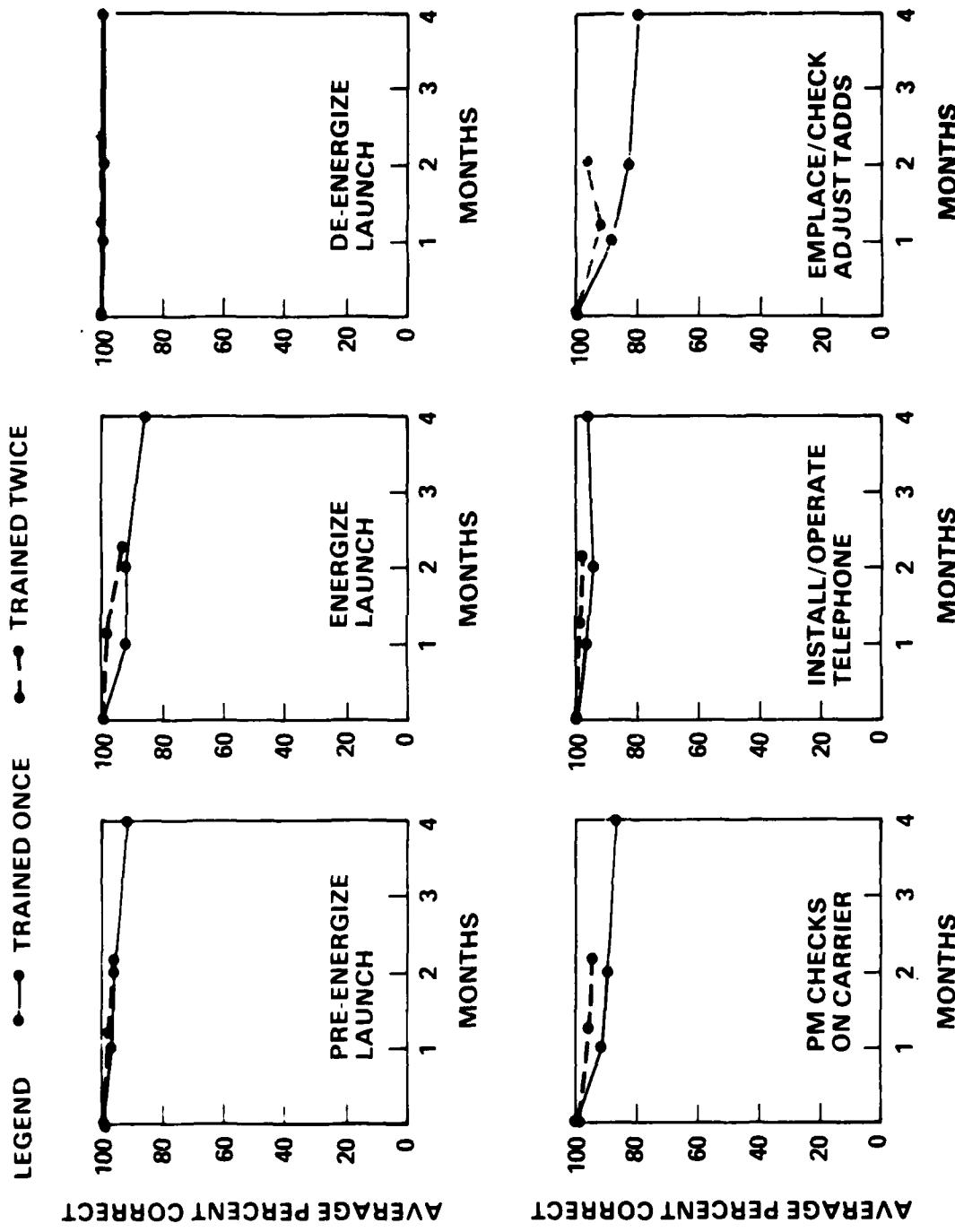


Figure 2. The average percentages of performance measures passed at 1-, 2-, and 4-month intervals after initial training in the unit (trained once) and at 1- and 2-month intervals after the second training in the unit (trained twice).

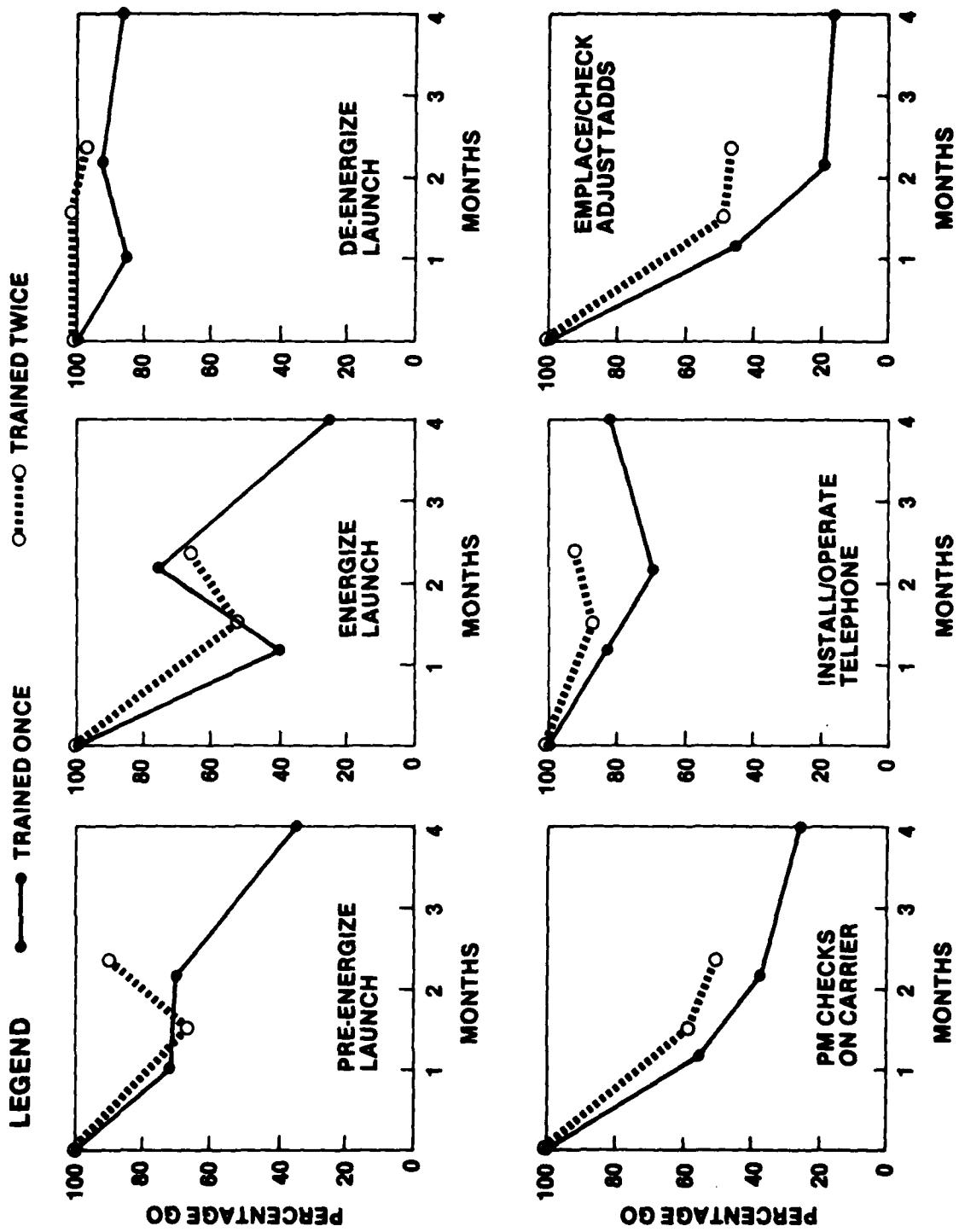


Figure 3. Percentages of soldiers passing each test at 1-, 2-, and 4-month intervals after initial training in the unit and second training in the unit (trained twice).

feedback provided at AIT on errors made during performance of the test tasks. Performance testing may be a promising way to maintain task proficiency.

## TECHNICAL SUPPLEMENT

Performance on six Chaparral tasks was evaluated as a function of AIT, refresher training, and time. Performance was measured, using hands-on performance tests administered at the end of AIT and in the unit. The following sections describe the experimental procedures and statistical analyses.

### Method

Subjects. The participants were Chaparral crewmen (16P MOS) who graduated from AIT at Fort Bliss, Tex., between July and September 1978, and were assigned to USAREUR Chaparral battalions. The number of subjects included in data analyses is listed by experimental group and time of testing (see Table 3). The number of subjects in the different comparisons varies due to availability of data and people.

Table 3

Numbers of Subjects With Usable Data in Each Category

| Experimental group | Time of test |          |            |            |            |
|--------------------|--------------|----------|------------|------------|------------|
|                    | AIT          | Arr unit | +1 mo unit | +2 mo unit | +4 mo unit |
| 1                  | 27           | 30       | 29         |            | 23         |
| 2                  | 32           | 33       |            | 30         | 26         |
| 3                  | 25           | 26       |            |            | 22         |

Performance Tests. Hands-on, criterion-referenced performance tests were developed which required performance of six selected tasks in the manner prescribed in the appropriate TM. The test situation, conditions, standards, and necessary equipment for performance were specified. Each test consisted of a number of performance measures. The performance measures were scored dichotomously on a "GO" or "NO-GO" basis. Soldiers' final scores equaled the total number of measures on which they achieved "GO" scores.

In most cases no time limit was specified for performance of a given task. Chaparral experts at Fort Bliss were consulted to establish reasonable time limits. "Reasonable" was defined as sufficient time for even a slow reader to accomplish all of the steps. To keep

the total test administration time roughly within a 2-hour limit, four of the more time-consuming steps from the TM procedure were omitted from the test. A sample test package is included in the appendix. The tests were validated at Fort Bliss using 30 AIR graduates who were not included in the research.

Training Materials. Demonstration and supervised practice of failed performance measures formed the primary mode for most of the refresher training. The tasks covered by the tests were straightforward and were covered in step-by-step detail by the TMs. In most cases, the training specified for a failed test item included supervised practice of the relevant section of the task, plus either a demonstration by the squad leader or a Training Extension Course (TEC) lesson.

The refresher training used in this study was intended to reflect the kinds of materials that can easily be obtained or devised by the average squad leader in the field. Five TEC lessons, three covering the launch station and two covering the Target Alert Data Display System (TADDS), were specified for use in refresher training. These lessons were accompanied by supervised practice of performance measures failed on the test. Since the TEC lessons could be reviewed by the soldiers, instead of having full-scale demonstrations by the squad leader, the time the squad leader needed to spend on the training was slightly reduced.

Special training material was prepared for the TADDS checkout procedure. The illustrated performance guide is included in the appendix. Explanatory material accompanying the TADDS procedure in the TM was insufficient in several places to guide a completely inexperienced individual through performance of the task and learning of the appropriate cues.

Squad Leader Training. Squad leaders, who would participate as testers/trainers in the research, took a short course. This course, covered in a Squad Leader's Guide, provided general background in the design and conduct of performance-based training and specific hands-on practice in the administration of the tests and training.

Procedure--AIT Testing. The tests were administered to soldiers 1 or 2 days before their AIT graduation date. The Directorates of Training and Evaluation of the U.S. Army Air Defense School trained and provided noncommissioned officers (NCOs) to conduct the AIT test administration. These NCOs tested all soldiers assigned to Germany over a 15-week period beginning in July 1978.

Upon completion of a given test, the soldiers were told which items they missed and were given a verbal description of the correct response. Soldiers were given neither demonstration nor practice in the correct response.

USAREUR Testing and Training. Two research representatives qualified in Chaparral conducted the research in USAREUR from August 1977 through April 1978. They trained squad leaders on how to conduct the performance-oriented testing and training program, assigned soldiers to experimental groups, notified battalions when soldiers were to be tested and trained, and monitored the program weekly in each of the seven participating battalions. During the weekly visits, the researchers provided training assistance when required.

Soldiers tested in AIT were followed to USAREUR and assigned to one of the three experimental groups. Soldiers were tested by squad leaders as soon as possible following arrival in the unit and then trained to 100% criterion on each test. Squad leaders administered all testing and training.

#### Results

The first series of analyses addressed the question: What is the effect on task proficiency of the interval between AIT and first testing in Germany?

The average time between AIT and testing in the unit was 50 days with a standard deviation of 15.6 days. Percentage of performance measures passed was used as the subject's score on each test.

To address the question, the following linear statistical model was examined for each test separately:

$$\hat{Y}_i = \beta_0 + \theta X_i + \beta_1 T_i + \beta_2 T_i^2,$$

where

$\hat{Y}$  is a subject's predicted score on the test at first unit testing (UT1)

$\beta_0$  is the intercept parameter,

$\theta$  is the regression parameter associated with AIT,

$X_i$  is a subject's AIT score,

$\beta_1$  is the regression parameter associated with the linear time component,  $T_i$ ,

$\beta_2$  is the regression parameter associated with the quadratic time component,  $T_i^2$ , and

$T_i$  is the elapsed time between AIT and UT1 for subject  $i$ , measured in days.

The statistical significance of parameters in the model was assessed separately for each test. Since the corresponding AIT score for each test score at UT1 was used as a "covariate-type" independent variable, the various regression models were tested in a univariate rather than a multivariate fashion. The regression results are summarized as follows:

Test No.

|   |   |
|---|---|
| 1 | Model: $\hat{Y} = 43.174 + .452 \text{AIT}$                   |
|   | $F(1, 87) = 6.96$   |
|   | $p \leq .01$  |
|   | $R^2 = .141$  |
| 2 | Model: $\hat{Y} = 52.11 + .304 \text{AIT}$                    |
|   | $F(1, 87) = 19.1003$  |
|   | $p \leq .01$  |
|   | $R^2 = .18$   |
| 3 | No significant relationships                                  |
| 4 | Model: $\hat{Y} = 51.94 + .231 \text{AIT}$                    |
|   | $F(1, 87) = 10.570$   |
|   | $p \leq .01$  |
|   | $R^2 = .11$   |
| 5 | Model: $\hat{Y} = 66.34 + .181 \text{AIT}$                    |
|   | $F(1, 87) = 8.84$   |
|   | $p < .01$   |
|   | $R^2 = .09$   |
| 6 | Model: $\hat{Y} = -46.57 + .262 \text{AIT} + 3.04T + .026T^2$ |
|   | $F(3, 85) = 6.0053$   |
|   | $p < .01$   |
|   | $R^2 = .17$   |

Performance on the UT1 is predictable from AIT performance for all tests except test 3 and from the retention interval for the 6th test.

The second series of analyses was structured to address the question: Does time have an effect on task proficiency after training to 100% criterion in the unit?

The mean number and standard deviation of days between the first and second test in the unit are shown below by experimental group:

| <u>Group</u> | <u>Mean number<br/>of days</u> | <u>Standard<br/>deviation</u> |
|--------------|--------------------------------|-------------------------------|
| 1            | 35.62                          | 6.77                          |
| 2            | 64.33                          | 7.98                          |
| 3            | 122.95                         | 6.18                          |

Percentage of performance measures missed was used as the subject's score on each test. The following linear statistical model was tested for each test separately:

$$\hat{Y} = \beta_0 + \beta T_i,$$

where

$\hat{Y}$  is a subject's predicted score on the test at time  $T_i$ ,

$\beta_0$  is the intercept parameter assumed to be the origin where  $Y = 0$  when  $T_i = 0$ ,

$\beta$  is the regression parameter associated with the linear time component  $T_i$ , and

$T_i$  is the elapsed time between training to 100% criterion and retesting, for subject  $i$ , measured in days.

The standard deviation of  $Y_i$  was proportional to  $T_i$ ; therefore  $\beta$  was estimated by the mean of the ratios  $Y_i/T_i$ .<sup>3</sup> The regression results are summarized as follows:

Test No.

1      Model:  $\hat{Y} = .07194 T_i$   
 $t(80) = 1.5140$   
 $p \geq .01$

2      Model:  $\hat{Y} = .15709 T_i$   
 $t(80) = 5.2241$   
 $p \leq .01$

---

<sup>3</sup> Snedecor, G. W., & Cochran, W. G. Statistical Methods. Ames, Ia.: The Iowa State University Press, 1967.

## Test No.

|   |   |
|---|---|
| 3 | Model: $\hat{Y} = .01600 T_i$<br>$t(80) = 2.6846$<br>$p \leq .01$ |
| 4 | Model: $\hat{Y} = .18667 T_i$<br>$t(80) = 5.6981$<br>$p \leq .01$ |
| 5 | Model: $\hat{Y} = .07625 T_i$<br>$t(80) = 3.5350$<br>$p \leq .01$ |
| 6 | Model: $\hat{Y} = .25324 T_i$<br>$t(80) = 6.0468$<br>$p \leq .01$ |

The results indicate that in the population sampled there is a relationship between percentage of performance measures missed and time since training, for all tests except test 1. However, the slope of the line ( $\beta$ ) indicates a very gradual change with time. The positive regression coefficients indicate more misses as days progress, which corresponds to the decrement in percentage of performance measures correct, illustrated in Figure 2.

The third series of analyses was designed to address the question: Does refresher training after the initial unit training to 100% criterion reduce the rate of performance change over time?

The mean number and standard deviation of days between the second and third test in the unit are shown below by experimental group:

| <u>Group</u> | <u>Mean number<br/>of days</u> | <u>Standard<br/>deviation</u> |
|--------------|--------------------------------|-------------------------------|
| 1            | 74.48                          | 16.80                         |
| 2            | 44.65                          | 10.33                         |

To answer the above question, regression lines for performance as a function of time for the soldiers given refresher training (trained twice to 100% criterion) were computed in the same manner as described in the second series of analyses. The regression coefficients of soldiers trained once were compared to soldiers trained twice, for each test separately (Snedecor & Cochran, 1967). The results are summarized as follows:

| Test | $\beta_1$ | $\beta_2$ | F     | df    | P          |
|------|-----------|-----------|-------|-------|------------|
| 1    | .072      | .044      | 1.502 | 1,128 | >.01       |
| 2    | .157      | .087      | 2.683 | 1,128 | >.01       |
| 3    | .016      | .002      | 3.109 | 1,128 | >.01       |
| 4    | .187      | .064      | 8.072 | 1,128 | $\leq .01$ |
| 5    | .076      | .024      | 3.232 | 1,128 | >.01       |
| 6    | .253      | .141      | 3.592 | 1,128 | >.01       |

These results indicate that refresher training (soldiers trained twice) did not significantly reduce the rate of performance decrement for five out of the six tests. The failure to find a significant effect due to refresher training may be due to the relatively high level of performance through time for all soldiers.

APPENDIX

# SQUAD LEADER'S GUIDE

For The  
**CHAPARRAL SKILL RETENTION STUDY**

Prepared by

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SKILL RETENTION STUDY  
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## TABLE OF CONTENTS

|   | <u>Page</u> |
|---|-------------|
| <b>SECTION 1. CHAPARRAL SKILL RETENTION STUDY .....</b>   | <b>21</b>   |
| <b>Introduction .....</b>   | <b>21</b>   |
| <b>SECTION 2. ADMINISTERING THE CHAPARRAL PERFORMANCE TESTS<br/>AND TRAINING .....</b>  | <b>25</b>   |
| <b>Administering Performance Tests .....</b>  | <b>25</b>   |
| <b>Administering the Chaparral Performance-Oriented<br/>Refresher Training .....</b>  | <b>27</b>   |
| <b>SECTION 3. EFFECTIVE DEMONSTRATION .....</b>   | <b>29</b>   |
| <b>Introduction .....</b>   | <b>29</b>   |
| <b>Demonstration - Not from Students' Viewpoint<br/>and Without an Explanation of Each Step .....</b>   | <b>29</b>   |
| <b>Demonstration from the Students' Viewpoint<br/>With Explanation .....</b>  | <b>30</b>   |
| <b>Review Process .....</b>   | <b>31</b>   |
| <b>Testing the Students' Ability to Demonstrate .....</b>   | <b>32</b>   |
| <b>SECTION 4. PHASES OF PERFORMANCE-ORIENTED REFRESHER<br/>TRAINING WHEN USING DEMONSTRATION AND<br/>PRACTICE AS THE METHOD OF TRAINING .....</b> | <b>33</b>   |
| <b>Introduction .....</b>   | <b>33</b>   |
| <b>Demonstration .....</b>  | <b>33</b>   |
| <b>Walk-Through .....</b>   | <b>34</b>   |
| <b>Individual Practice .....</b>  | <b>34</b>   |
| <b>Performance Test .....</b>   | <b>34</b>   |
| <b>Review of Process .....</b>  | <b>35</b>   |
| <b>SECTION 5. MORE ON ADMINISTERING PERFORMANCE TESTS AND<br/>REFRESHER TRAINING .....</b>  | <b>36</b>   |
| <b>Introduction .....</b>   | <b>36</b>   |
| <b>Administering Performance Tests .....</b>  | <b>36</b>   |
| <b>Administering Refresher Training .....</b>   | <b>38</b>   |

TABLE OF CONTENTS  
(continued)

|  | <u>Page</u> |
|--|-------------|
| SECTION 6. THE TADDS HANDOUT: PROCEDURES FOR PERFORMING<br>THE TADDS BATTERY CHECK AND THE TADDS SELF-CHECK .... | 45          |
| Test No. 1. Battery Voltage Check .....  | 46          |
| Test No. 2. Performing the TADDS Self-Test Check .....   | 51          |

CHAPARRAL PERFORMANCE TESTING RECORD

CHAPARRAL PERFORMANCE TESTS

|  |  |
|--|--|
| General Instructions for Administering and Scoring   |  |
| Test No. 1. Pre-energizing the M-54 Launch Station   |  |
| Test No. 2. Energizing the M-54 Launch Station   |  |
| Test No. 3. Deenergizing the M-54 Launch Station   |  |
| Test No. 4. Before Operations PM Checks on the M730 Carrier  |  |
| Test No. 5. Operational Checks on the TA-312/PT Telephone Set  |  |
| Test No. 6. Emplacement and Operator Checks and<br>Adjustments on the Target Alert Data<br>Display Set AN/GSQ-137 (XO-2) |  |

SECTION 1  
CHAPARRAL SKILL RETENTION STUDY

Introduction

As a Chaparral Squad Leader, you are about to begin participating in a research program designed to find out how much new 16P AIT graduates can do when they leave school, how much they forget by the time they start work at their first duty station, and how often they need refresher training during their first few months on the job in order to remain proficient. This program focuses more on skills needed to do the job than on knowledge required to pass tests.

Use the test-train-test approach. The key to this program is an approach you may have heard of but not had much of a chance to practice: performance-oriented training. The approach is: test people, primarily "hands-on," to find out what they can and cannot do; give them training, but only on the things they cannot do; give them lots of chances to practice (not just lecture and demonstration); finally, test them again to be sure they can do it.

People forget things. As you've noticed, people who can do something today may have forgotten how to do it in a month or two, and this is one of the problems we're dealing with in the research program. Before a new man comes to you from AIT, he will be tested at Ft. Bliss. Your first responsibility after he joins your squad will be to test him again. The results of your first test will tell how much he has forgotten since AIT.

You will provide the "pause that refreshes." For every item on each of the tests (there are six different tests), there is an indication of the kind of "refresher training" that should be given to a man who misses that item on the test. In most cases, the training is pretty simple: you will demonstrate the correct thing to do, walk the man through a supervised practice run, and let him practice on his own until you both feel he's ready to be tested again. In some cases, there's a TEC Lesson specified to help you out. You should always have the man take the TEC Lesson before you do your demonstration and supervise his practice.

What you're going to learn here. In this short course, you'll be learning (or maybe reviewing, if you've done this sort of thing before) the following things:

1. How to give effective performance-oriented training, including how to give an effective demonstration and to supervise practice;
2. How to decide what refresher training may be required when people fail particular items on the test;
3. How to get the equipment ready and to conduct and score the performance test;
4. Finally, how to take the test yourself, so that you will definitely be the "expert" when the time comes to give it to someone else.

What are the tasks? The tasks selected for this research program are ones that a number of squad leaders have agreed that they would be most likely to assign to a new AIT graduate if they could trust him to perform without hurting himself or damaging the equipment. They include the following: preenergize, energize, and deenergize the launch station (part of the daily routine); perform the daily preoperation checks on the carrier; install and operate the TA-312/PT field telephone; and do the operational checks on the TADDS. They're all things that are likely to be done by a new man, and they're all covered by step-by-step procedures in various tech manuals. Part of the test requires that the man perform in accordance with procedures set forth in the manuals as he performs the tasks. You will have a scoresheet for each test (we'll see the scoresheets later), and the scoresheet will be keyed to the TM procedure, so the man must follow the TM in order to be performing the same task that you're scoring.

What happens to a guy who fails? First of all, it's important for you and your men to realize that THIS IS NOT AN SQT. The results of the testing and training will be used by the Army Research Institute to help decide on ways to improve both resident training and OJT, but even ARI won't be able to associate people's names with their results when it's all over. So really, the only thing that happens to a guy who fails part of a test is that he gets trained better to do his job. And you get better at doing yours.

Just what will you have to do to the new man? Through about October, every new AIT 16P graduate who is assigned to Germany will be tested before he leaves Ft. Bliss. When one of these men is assigned to your squad, your first responsibility will be to test him again, within two weeks following his arrival in the unit. The fact that you're receiving this training means that you're probably due to get one of these new men pretty soon, or possibly you already have him. As the attached record sheet shows, there are three collections of things ("FIRST," "SECOND," and "FINAL") that you will be doing to this new man. First, within two weeks after his arrival, you will be responsible for the things in the "FIRST" section: test him, give him refresher training in areas where he misses items on the test, and test him one more time (only on the tests that were NO GO the first time). Next, you'll do the whole thing (test--refresher training as needed--test) again, in a month or two. The research program representative will tell you exactly when to schedule this "SECOND" drill. Finally, about four months after the first cycle, you must schedule the "FINAL" administration of the test (again, the program representative will tell you exactly when to schedule this event) For some soldiers, you will not go through the "SECOND" drill, but only the "FINAL" drill (the program representative will tell you). At this point, your participation (and the participation of your squad member) in the study will be finished.

Then what? After you have administered and scored the test for the third time, it will be your choice: you can provide refresher training (if it's needed) and continue to use the test-train-test method of performance oriented training, if you've found that it offers benefits for your squad's proficiency, or you can drop the whole thing. By the same token, you can do the testing and training with other members of your squad who are not new AIT graduates.

What's in the rest of this book? You will be able to keep this notebook when we're finished. In later sections you will find an outline of the material being presented to you: giving an effective demonstration, giving performance tests and training, and administering the special tests and training for this particular program. At the back of the binder there are a couple of blank pages you can use to take notes.

### INDIVIDUAL REFRESHER TRAINING/TESTING RECORD

Name \_\_\_\_\_ Unit \_\_\_\_\_  
 MOS \_\_\_\_\_ Date Arrived at Unit \_\_\_\_\_  
 SSN \_\_\_\_\_ AIT Graduation Date \_\_\_\_\_

|                   |       |
|-------------------|-------|
| OFFICIAL USE ONLY |       |
| Study Code No.    | _____ |
| AIT Test Date     | _____ |
| SL Trained by     | _____ |

| TEST            | FIRST  |       | SECOND |       | FINAL  |       |
|-----------------|--------|-------|--------|-------|--------|-------|
|                 | Tester | Score | Tester | Score | Tester | Score |
| 1 Preenerge     |        |       |        |       |        |       |
| 2 Energize      |        |       |        |       |        |       |
| 3 Deenergize    |        |       |        |       |        |       |
| 4 Carrier Preop |        |       |        |       |        |       |
| 5 TA 312/PT     |        |       |        |       |        |       |
| 6 TADDS         |        |       |        |       |        |       |

AIT SCORES: % PASS, Test 1 \_\_\_\_\_  
 Test 2 \_\_\_\_\_  
 Test 3 \_\_\_\_\_  
 Test 4 \_\_\_\_\_  
 Test 5 \_\_\_\_\_  
 Test 6 \_\_\_\_\_

Tester/Instructor Key Initials \_\_\_\_\_ Name \_\_\_\_\_  
 Initials \_\_\_\_\_ Name \_\_\_\_\_  
 Initials \_\_\_\_\_ Name \_\_\_\_\_  
 Initials \_\_\_\_\_ Name \_\_\_\_\_

## SECTION 2

### ADMINISTERING THE CHAPARRAL PERFORMANCE TESTS AND TRAINING

As a Squad Leader, you will be responsible for administering all parts of the performance-oriented refresher training. The refresher training covers six major tasks.

1. Preenergizing the launch station.
2. Energizing the launch station.
3. Deenergizing the launch station.
4. Performing carrier before operations PM checks.
5. Performing operational checks on the TA-312/PT Field Telephone.
6. Performing emplacement and operator checks and adjustments on the TADDS.

Each major task has its own performance test. In the performance test, the major task is divided into steps. It will be your job to administer the performance test; score each step as the examinee performs it; and, if necessary, administer refresher training. Each performance test has a list of required equipment, a list of required personnel, directions on how to prepare the equipment for the test, and administration procedures to tell you how to give the test.

#### Administering Performance Tests

1. For a test to be a good measuring instrument, it must be administered the same way every time.
2. A performance test specifies the testing conditions and the performance standard. You must see that the

testing conditions are met, see that no step is omitted, see that each step is performed correctly, and see that you time each test accurately.

3. You must insure that all conditions are the same for each student you test.
4. To give the test properly, do this:
  - a. Always read the test instructions to the examinee in the same tone of voice, insuring that each examinee understands the instructions completely. If the examinee fails to understand the first time, repeat the instructions one more time.
  - b. Score each examinee on each performance measure of each test and check his score sheet pass or fail. Do not assume that an examinee who completes a few steps of the test correctly can complete all steps correctly.
  - c. Take all precaution necessary to insure that soldiers waiting to be tested cannot see the performance or hear you give the instructions to the examinee.
5. Each examinee must be given the same chance to demonstrate his competence as every other examinee taking the test. To achieve this goal, you must adhere strictly to the following guidelines:
  - a. Do not administer a test unless all examinee materials and equipment are on hand and operational. Also, all test conditions, as specified, must be met. All examinees must encounter the same conditions and have the opportunity to achieve the same standards.

- b. Do not influence, by verbal comments, gestures, facial expressions, or the like, an examinee's performance in any way. Do not answer questions of the examinee, once the test has begun.
- c. Do not wait until the end of the test to fill in the score sheet. Make the checks on the score sheet as the actions are performed.
- d. After each test is completed, tell the examinee whether he received a GO on that test. If he failed some performance measures, tell him what he did wrong and record the reason on the score sheet.
- e. Follow the procedures prescribed for your unit for giving refresher training to examinees who fail some part of the test(s).

Administering the Chaparral  
Performance-Oriented  
Refresher Training

1. Look at the score sheet for the TADDS performance test (Test No. 6) at the back of this book. While the examinee is taking this test, you will score his performance on each step either PASS or FAIL. After the examinee has completed the entire test, if he has passed all of the steps, you will mark his score sheet GO. If the examinee has failed one or more of the steps, you will mark his score sheet and tell him what he did wrong, and you will circle the required refresher training. After you have marked the score sheet, the examinee can go on to the next performance test. You should continue this procedure until the examinee has taken all six of the performance tests. After the examinee has completed all of the tests, examine each score sheet carefully to determine what refresher training is needed. What refresher training the examinee will take is

determined by what step or steps the examinee failed to perform correctly. For example, if an examinee passes all of the steps in the TADDS test except Step 6, you should direct him to take only the refresher training indicated in the Refresher Training column of the score sheet for Step 6. For Step 6, you should show the examinee how to properly check the SIG AND BAT meter for the proper reading. You should not give him refresher training for any of the other performance test steps, because he has already demonstrated that he knows how to correctly perform them.

2. After the examinee has completed the refresher training for all of the score sheets which indicate a failed performance measure, have him retake only the tests for which he had received a FAIL on some performance measure. If he still does not receive a GO for all tests, give him the appropriate refresher training and then have him retake the test or tests again. Continue this procedure until the examinee has received a GO for each of the six performance tests.

SECTION 3  
EFFECTIVE DEMONSTRATION

Introduction

1. WHEN YOU ARE GIVING ONE OF YOUR MEN REFRESHER TRAINING, YOU WILL OFTEN BE REQUIRED TO DEMONSTRATE HOW TO PERFORM A PARTICULAR TASK. HOW WELL AND HOW FAST YOUR MEN WILL LEARN THE TASK WILL DEPEND ON THE EFFECTIVENESS OF YOUR DEMONSTRATION. IF YOU GIVE A GOOD DEMONSTRATION, IT WILL BE EASY FOR YOUR MEN TO LEARN THE TASK. DURING THIS CLASS YOU WILL BE LEARNING THE PRINCIPLES OF EFFECTIVE DEMONSTRATION AND HOW THESE PRINCIPLES CAN SERVE AS GUIDELINES IN PRODUCING AN EFFECTIVE DEMONSTRATION. (Issue each squad leader a TADDS.) WE WILL ALL WORK WITH THE TADDS DURING THIS CLASS.
2. THE TRAINING OBJECTIVE FOR THIS DEMONSTRATION IS THAT YOU WILL BE ABLE TO PERFORM THE TADDS BATTERY VOLTAGE CHECK AND DETERMINE IF THE INDICATIONS YOU OBTAIN ARE CORRECT.
3. I WILL FIRST DEMONSTRATE FROM ONE POSITION, WHILE YOU FOLLOW ME, AND THEN FROM ANOTHER POSITION, WHILE YOU FOLLOW, TO SEE IF THERE IS ANY DIFFERENCE IN THE WAY YOU CAN LEARN THE PROCEDURE.

Demonstration - Not from Students' Viewpoint and Without an Explanation of Each Step

1. (Stand facing the students with the face of the TADDS where it can be seen and heard by all students and demonstrate slowly the performance of the TADDS Battery Check procedures. Do not explain any step during the demonstration.)

2. NOW I WILL DEMONSTRATE EACH STEP SLOWLY WHILE YOU WATCH. THEN I WILL DO IT AGAIN SLOWLY WHILE YOU PERFORM THE SAME ACTIONS AS I DO. (On the second run-through, require all students to attempt performance of the test. Most will become hopelessly confused. When this happens, stop and ask questions.)
3. "WHAT AM I DOING WRONG?" Someone will say, "You didn't turn the Power switch on when you began the test," or "we can't see the battery voltage meter," or the like, meaning: (DEMONSTRATE FROM THE STUDENTS' VIEWPOINT.) (Write that principle on the chalkboard, and tell the students to write it on the note sheets in their notebooks, leaving space below to add something later.)
4. WHAT ELSE SHOULD I HAVE DONE DURING THE DEMONSTRATION? (If you get no response, ask, "DID I EXPLAIN HOW TO DO ANY ONE STEP? NO!" Put on the chalkboard and ask the students to write: CAREFULLY EXPLAIN EACH STEP AS YOU DEMONSTRATE. Be sure to leave a space on the board under each principle.)

Demonstration from the Students'  
Viewpoint with Explanation

1. (Turn your back to the students--and slowly demonstrate and carefully explain each step and emphasize each critical (key) point.)

NOW I'LL DEMONSTRATE FROM YOUR VIEWPOINT AND EXPLAIN EACH STEP. AS I SHOW AND EXPLAIN, YOU DO AS I DO AND YOU CAN LEARN THE PROCEDURE RATHER EASILY. BE SURE TO ASK QUESTIONS IF YOU DO NOT UNDERSTAND. BEFORE WE FINISH, YOU WILL BE ABLE TO PERFORM THIS TASK.

2. (Demonstrate and explain two or three times or until most students can perform correctly, then individually coach the slower learners. As each performs correctly, tell him, "You are a 'GO'.")

3. DID YOU NOTICE ANYTHING IN PARTICULAR THAT I SEEMED TO EMPHASIZE? (If students fail to respond, point out that you emphasized critical (key) points--things they must do to perform the task correctly and easily--and illustrate with several instances.)
4. THERE IS ANOTHER PRINCIPLE WE SHOULD NOTE AT THIS POINT: WHAT DID I ASK YOU TO DO AS I SHOWED AND EXPLAINED THE TASK? (A student may say, "We tried to do it," or the like.) THAT IS A VERY IMPORTANT PRINCIPLE BECAUSE THE STUDENT STARTS TO LEARN IMMEDIATELY BY DOING. (Write on chalkboard: REQUIRE STUDENTS TO PERFORM AS YOU DEMONSTRATE AND EXPLAIN.)
5. YOU SHOULD ALSO BE AWARE OF THREE OTHER PRINCIPLES OF EFFECTIVE DEMONSTRATION. COULD YOU CLEARLY SEE WHAT I WAS DOING? (The answer should be "Yes." Put on the chalkboard under "Demonstrate from the Students' Viewpoint": BE SURE THE STUDENTS CAN CLEARLY SEE YOUR DEMONSTRATION.)  
COULD YOU HEAR MY EXPLANATION? (The answer should be "Yes." Put on the chalkboard under "Carefully Explain each Step as you Demonstrate": BE SURE THE STUDENTS CAN HEAR YOU.)  
DID I USE WORDS YOU COULD EASILY UNDERSTAND? (The answer should be "Yes." Put on the chalkboard under "Be Sure the Students Can Hear You": USE WORDS THE STUDENTS CAN UNDERSTAND.)

#### Review Process

1. (The TADDS should be open.) IF I NEEDED TO DEMONSTRATE HOW TO PERFORM THE TADDS BATTERY CHECK, HOW COULD I APPLY THE TWO PRINCIPLES OF EFFECTIVE DEMONSTRATION--DEMONSTRATE FROM THE STUDENTS' VIEWPOINT and BE SURE THE STUDENTS CAN CLEARLY SEE YOUR DEMONSTRATION? (If the

students fail to respond, give a demonstration on how to perform a TADDS Battery Check and do not adhere to these two principles. After the demonstration is over, ask the students, COULD YOU SUGGEST ANYTHING THAT WOULD IMPROVE THE DEMONSTRATION THAT I JUST COMPLETED?)

2. WHY IS IT IMPORTANT TO FOLLOW THE PRINCIPLE--CAREFULLY EXPLAIN EACH STEP AS YOU DEMONSTRATE? (If the students fail to respond, ask them this question, IF I WERE GOING TO SHOW YOU HOW TO PERFORM A TADDS BATTERY CHECK, WOULD IT BE EASIER TO LEARN IF I EXPLAINED EACH STEP AS I DEMONSTRATED IT, OR WOULD IT BE EASIER TO LEARN IF I DEMONSTRATED WITHOUT ANY EXPLANATION?)
3. IF YOU WERE GOING TO GIVE A DEMONSTRATION ON HOW TO PERFORM A TADDS BATTERY CHECK, WHAT KEY POINTS WOULD YOU EMPHASIZE? (If the students fail to respond, ask them this question, WHAT MUST BE DONE TO OBTAIN A CORRECT BATTERY CHECK?)
4. WHY IS IT IMPORTANT TO FOLLOW THE PRINCIPLE--REQUIRE STUDENTS TO PERFORM AS YOU DEMONSTRATE AND EXPLAIN?

Testing the Students' Ability to Demonstrate

1. Take one student at a time out of sight and hearing range. First have him demonstrate, using the TADDS and the student handout, how to perform the TADDS Battery Check. If the student fails to follow the principles of effective demonstration, show him what he did wrong and have him repeat the demonstration until he successfully demonstrates the TADDS Battery Check to your satisfaction. (Repeat this process with each student.)

## SECTION 4

### PHASES OF PERFORMANCE-ORIENTED REFRESHER TRAINING WHEN USING DEMONSTRATION AND PRACTICE AS THE METHOD OF TRAINING

#### Introduction

1. UP TO NOW YOU HAVE LEARNED THE PRINCIPLES OF EFFECTIVE DEMONSTRATION AND HOW TO GIVE AN EFFECTIVE DEMONSTRATION.
2. THE PURPOSE OF THE TASK YOU WILL LEARN NOW IS TO DEMONSTRATE THE PHASES OF PERFORMANCE-ORIENTED REFRESHER TRAINING--DEMONSTRATION, TASK WALK-THROUGH, INDIVIDUAL PRACTICE, AND PERFORMANCE TESTING.
3. DURING THIS CLASS, NOTE THE APPLICATION OF THE PRINCIPLES OF EFFECTIVE DEMONSTRATION. WHEN ALL OF YOU HAVE LEARNED THE TASK, WE WILL DISCUSS WHAT HAPPENED IN RELATION TO THE PRINCIPLES OF EFFECTIVE DEMONSTRATION.
4. THE TRAINING OBJECTIVE FOR THE TASK WE HAVE CHOSEN FOR DEMONSTRATION IS THAT YOU WILL BE ABLE TO PERFORM THE TADDS SELF-CHECK WITHIN 5 MINUTES.

#### Demonstration

1. Give each student a TADDS and the student handout.
2. Stress to the students the importance of using the procedures as outlined in the handout.
3. Demonstrate using the TADDS and the handout, and explain as effectively as you can at a pace suited to your students until you have covered the content and meaning of each check (stress each point covered in the handout).

### Walk-Through

1. NOW THAT I HAVE COMPLETED THE DEMONSTRATION, THE NEXT PHASE IS THE WALK-THROUGH, WHICH MEANS THAT YOU WILL HAVE A PRACTICAL EXERCISE AND PERFORM EACH STEP IN THE SELF-CHECK WITHOUT MY HELP.
2. (Coach students who need help:
  - a. If possible, prevent students from making errors.
  - b. Praise students who do well.)

### Individual Practice

1. Explain that you have completed the walk-through phase.
2. Make sure each student has an operational TADDS.
3. Work at your own pace and perform the Self-Check following the outline in the handout.
  - a. Tell the students they may ask for help at any time.
  - b. Assign fast learners to help slower students.

### Performance Test

1. Check each TADDS to make sure they are still operational. Make sure each student has his handout.
2. Brief each student:
  - a. Tell him he has 5 minutes to perform the self-check on the TADDS. Ask him if he has any questions, and tell him to begin.
  - b. Stop the student at the end of 5 minutes.
  - c. Score the student, and if he failed any step in the procedure, tell him which step he failed and show him the correct way to perform the check.
  - d. Test each student in the same manner.

Review of Process

1. WE HAVE JUST COMPLETED EACH PHASE THAT WILL USUALLY BE INCLUDED IN PERFORMANCE TRAINING.
2. By means of group discussion, ask the students questions on each phase. (Reinforce what each phase contains.)
  - a. WHAT WAS THE FIRST PHASE? (Demonstration)
  - b. WHAT DO WE CALL THE PROCESS WHEN I TELL YOU TO PERFORM EACH STEP WITHOUT DEMONSTRATION? (The walk-through.)
  - c. WHAT WAS THE PHASE AFTER THE WALK-THROUGH (Individual practice.)
  - d. In summary, ask the students to state what each phase attempts to bring out. (Students should state that the process takes them from the very basics to performing the task correctly within the specified time.)

## SECTION 5

### MORE ON ADMINISTERING PERFORMANCE TESTS AND REFRESHER TRAINING

#### Introduction

1. TO OBTAIN ACCEPTABLE RESULTS, PERFORMANCE TESTS AND REFRESHER TRAINING MUST BE PROPERLY ADMINISTERED. THE OBJECTIVE OF THIS COURSE IS TO TEACH YOU HOW TO PROPERLY ADMINISTER PERFORMANCE TESTS AND REFRESHER TRAINING. (Stress the point that equipment TMs must be used as a standard for the training.)

#### Administering Performance Tests

1. BEFORE YOU GIVE ONE OF YOUR MEN PERFORMANCE-ORIENTED REFRESHER TRAINING, YOU MUST FIND OUT WHAT TRAINING HE NEEDS. YOU DO THIS BY GIVING HIM A PERFORMANCE TEST. BY LOOKING AT THE RESULTS OF A PERFORMANCE TEST, YOU CAN SEE WHAT HE KNOWS AND DOES NOT KNOW ABOUT A PARTICULAR TASK.
2. (Have the students look at the copy of the TA-312/PT Telephone Set Performance test, Test No. 5, and score sheet at the back of this book.) LOOK OVER THIS PERFORMANCE TEST FOR A FEW MINUTES SO YOU ARE FAMILIAR WITH ITS CONTENTS. (While the students are looking over the performance test, set up a testing station to administer the field telephone performance test. Do not have a distant station or operator present and do not have any batteries present. Pick one of the students to serve as an examinee.)

I AM GOING TO GIVE THIS SOLDIER A PERFORMANCE TEST ON THE TA-312/PT TELEPHONE SET. WATCH ME CAREFULLY TO SEE IF I CORRECTLY ADMINISTER THE TEST. (Start the

test. Tell the examinee, "SINCE WE DON'T HAVE ANOTHER STATION, DON'T BOTHER CONNECTING THE WIRES." As the examinee performs each step, if he performs it correctly say something like, "That's good;" if he performs it incorrectly, say something like, "You blew that one." If the examinee asks you for batteries, tell him you do not have any and to skip installing the batteries. Allow the examinee to complete the test.)

WHAT DID I DO WRONG? (In the discussion, stress that you should have had all required equipment present and operational, including a distant station and batteries; that you should not have skipped any steps; that you should not have commented on the examinee's performance while the test was being conducted; and that you should have read the instructions aloud to the examinee before beginning the test.)

3. YOU ARE NOW GOING TO TRY ADMINISTERING A PERFORMANCE TEST. (Take one student at a time out of sight and hearing range and have him administer the field telephone performance test. You will serve as the examinee for this test. Make two or three mistakes during the test. (Example: put both batteries in the up position.) After the test has been completed, check that the student has scored your performance correctly. If the student has made any mistakes in the administration or scoring of the test, explain to him what he did wrong. If you feel he is not sure of how to properly administer a performance test, have him administer the test again and provide whatever additional counseling he may need. Critique the scorer on such things as whether he has scored you correctly and whether he has responded properly to unusual situations you have created.)

### Administering Refresher Training

1. AFTER YOU HAVE ADMINISTERED ALL OF THE PERFORMANCE TESTS, YOU WILL HAVE TO ADMINISTER WHATEVER PERFORMANCE-ORIENTED REFRESHER TRAINING THE EXAMINEE NEEDS.
2. YOU WILL USE THE SCORE SHEETS OF THE PERFORMANCE TESTS TO FIND OUT WHAT REFRESHER TRAINING IS NEEDED. ALWAYS REMEMBER THAT THIS IS PERFORMANCE-ORIENTED REFRESHER TRAINING. THE WORDS PERFORMANCE-ORIENTED ARE THE KEY WORDS. WHAT THIS MEANS IS THAT IF AN EXAMINEE PASSES ALL STEPS OF A PERFORMANCE TEST, HE KNOWS HOW TO PERFORM THE TASKS COVERED BY THE TEST AND HE DOES NOT NEED ANY TRAINING ON HOW TO PERFORM THOSE TASKS. IF AN EXAMINEE PASSES ALL OF THE STEPS OF A PERFORMANCE TEST EXCEPT ONE, HE NEEDS ONLY THE REFRESHER TRAINING WHICH COVERS THE TASKS IN THE ONE STEP HE FAILED TO PERFORM CORRECTLY, AND HE DOES NOT NEED ANY TRAINING WHICH COVERS THE TASKS IN THE STEPS HE PERFORMED CORRECTLY BECAUSE HE HAS SHOWN THAT HE ALREADY KNOWS HOW TO PERFORM THOSE TASKS.
3. THIS MAY SOUND CONFUSING, BUT IT WILL BECOME EASY FOR YOU TO UNDERSTAND. (Pass out the sample score sheets.) LOOK AT SAMPLE SCORE SHEET NO. 1. WHAT REFRESHER TRAINING DOES THE EXAMINEE REQUIRE FOR THE TASKS COVERED BY THIS TEST? (The students should answer "none.") THE EXAMINEE DOES NOT NEED ANY REFRESHER TRAINING FOR THE TASKS COVERED BY THIS TEST BECAUSE BY PASSING ALL STEPS IN THE TEST, HE HAS SHOWN THAT HE KNOWS HOW TO PERFORM THOSE STEPS. LOOK AT SAMPLE SCORE SHEET NO. 2. WHAT REFRESHER TRAINING DOES THE EXAMINEE REQUIRE FOR THE STEPS COVERED BY THIS TEST? (The students should answer that refresher training is needed for Steps 2 and 5.) THE ONLY REFRESHER TRAINING THAT YOU SHOULD GIVE TO THE EXAMINEE IS THE REFRESHER TRAINING SPECIFIED IN THE REFRESHER TRAINING COLUMN FOR STEPS 2 AND 5. THIS MEANS THAT YOU SHOULD REVIEW PARAGRAPHS 3-12 THROUGH

3-16 WITH HIM, AND SHOULD DEMONSTRATE AND HAVE HIM PRACTICE LOCATING AND INSPECTING ALL IDLER AND ROAD WHEELS FOR CORRECT OIL LEVEL. NO OTHER REFRESHER TRAINING IS NEEDED FOR THE TASKS COVERED BY THIS TEST. ARE THERE ANY QUESTIONS? HOW WOULD YOU MARK SAMPLE SCORE SHEETS NO. 1 AND NO. 2, GO OR NO GO? (The students should answer that No. 1 should be marked GO and No. 2 should be marked NO GO.) NO. 1 SHOULD BE MARKED GO BECAUSE THE EXAMINEE HAS PASSED ALL OF THE STEPS. NO. 2 SHOULD BE MARKED NO GO BECAUSE THE EXAMINEE HAS FAILED ONE OR MORE OF THE STEPS, IN THIS CASE THE EXAMINEE HAS FAILED TWO OF THE STEPS.

4. ON THE BACK OF SAMPLE SCORE SHEET NO. 3, WRITE DOWN WHAT REFRESHER TRAINING SHOULD BE GIVEN TO THE EXAMINEE WHO TOOK THIS TEST. ALSO, SCORE THE SCORE SHEET EITHER GO OR NO GO. (Check the answers of each student and counsel any student who made a mistake.)

## TEST NO. 2

## SCORESHEET FOR ENERGIZING THE M-54 LAUNCH STATION

Instructions to Examinee. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO ENERGIZE THE M-54 LAUNCH STATION ACCORDING TO TM 9-1440-585-10, TABLE 2-9, PAGE 2-30. (Note: Scorer will open TM 9-1440-585-10 to page 2-30 for the examinee.)" "IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURE IN THE TECH MANUAL TO PERFORM THIS TASK. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST WITHIN 15 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step | Performance Measures (Sequence is Scored)  | PASS | FAIL | REFRESHER TRAINING  |
|------|--|------|------|---|
| 1.   | If the temperature is below 40 degrees Fahrenheit, the examinee sets the BATTERY HEATER switch to PRIME for ten seconds and then sets the BATTERY HEATER switch to ON. After starting the battery heater the examinee detects the structure vent fan fails to operate. (Examinee must report the failure to pass this step.) | ✓    | —    | TEC LESSON NO. 043-441-7803F and 7804F,<br>plus at least one supervised practice run. |
|      | -OR-   |      |      |   |
| 2.   | If the temperature is above 40 degrees Fahrenheit, the examinee does not start the battery heater and will not detect the vent fan failure at this time. The examinee must close the rear compartment door.  | ✓    | —    | "   |
| 3.   | Sets the MASTER POWER switch to ON.  | ✓    | —    | "   |
| 4.   | Sets the PRIME POWER switch to MAN.  | ✓    | —    | "   |
| 5.   | If the battery heater was not started, the failure of the structure vent fan must be detected at this time. After the examinee has detected the structure vent fan failure, reconnect electrical power to the fan and tell the examinee to continue with the energizing procedure.   | ✓    | —    | "   |

## Sample Scoresheet No. 1

## TEST NO. 4

## SCORESHEET FOR PERFORMING M730 CARRIER BEFORE OPERATIONS PM CHECKS

Instructions to Examiner. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO PERFORM BEFORE OPERATION PM CHECKS ON THE M730 CARRIER ACCORDING TO TM 9-1450-585-10, TABLE 3-1, PAGE 3-4." (Note: Scorer will open TM 9-1450-585-10 to page 3-4, Table 3-1 for the examinee.) "IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURE IN THE TECH MANUAL TO PERFORM YOUR CHECKS. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST WITHIN 40 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step | Performance Measures (Sequence not Scored)  | PASS | FAIL | REFRESHER TRAINING               |
|------|---|------|------|----------------------------------|
| 1.   | Checks the tracks, road wheels, idler wheels, and sprockets for excessive wear or damage. | ✓    | —    | Demonstration/Practice           |
| 2.   | QUESTION: What would you do if you found a defective carrier component?                   | —    | —    | Review Paragraphs 3-12 thru 3-16 |
|      | ANSWER: Record the defect on DA Form 2404 and report it to organizational maintenance.    | ✓    | —    | Demonstration/Practice           |
| 3.   | Checks shock absorbers and torsion bars.  | ✓    | —    | Review Table 3-1                 |
| 4.   | QUESTION: How can you tell if any of the torsion bars are broken?                         | ✓    | —    | Demonstration/Practice           |
|      | ANSWER: The road wheel will lift easily.  | —    | —    | Review Table 3-1                 |
| 5.   | Checks idler and road wheels for correct oil level.                                       | ✓    | —    | Demonstration/Practice           |
| 6.   | QUESTION: What is the correct oil level?  | ✓    | —    | Review Table 3-1                 |
|      | ANSWER: Oil should be visible halfway up the sight indicator.                             | —    | —    |                                  |

## Sample Scoresheet No. 2

## TEST NO. 1

## SCORESHEET FOR PRE-ENERGIZING THE M-54 LAUNCH STATION

Instructions to Examinee. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO SET ALL SWITCHES AND CONTROLS ON THE M-54 LAUNCH STATION TO THE PRE-ENERGIZE POSITION ACCORDING TO TM 9-1440-585-10 TABLE 2-8, PAGE 2-28." (Note: Scorer will open TM 9-1440-585-10 to page 2-28 for the examinee.) "THE ALTITUDE SETTING YOU WILL USE IS \_\_\_\_\_ AND THE TEMPERATURE SETTING IS \_\_\_\_\_. THESE READINGS WILL BE USED FOR YOUR TEST. IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURE IN THE TECH MANUAL TO PERFORM THIS TASK. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST IN 12 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step | Performance Measures (Sequence is Scored)   | PASS |   | FAIL |   | REFRESHER TRAINING |   |
|------|---|------|---|------|---|--------------------|---|
|      |   |      |   |      |   |                    |   |
| 1.   | Sets the MASTER POWER switch to OFF.  | ✓    | ✓ | —    | — | —                  | — |
| 2.   | Sets COMM switch to OFF.  | ✓    | ✓ | —    | — | —                  | — |
| 3.   | Sets the PRIME POWER switch to OFF.   | ✓    | ✓ | —    | — | —                  | — |
| 4.   | Sets the ERECT-RETRACT BREAKER to ON.   | ✓    | ✓ | —    | — | —                  | — |
| 5.   | If the temperature is above 40 degrees Fahrenheit, sets the MISSILE HEATER BREAKERS STORED LEFT to OFF. If the temperature is below 40 degrees Fahrenheit, sets it to ON. | ✓    | ✓ | —    | — | —                  | — |
| 6.   | Sets MISSILE HEATER BREAKERS RIGHT STORED to the appropriate position.  | ✓    | ✓ | —    | — | —                  | — |
| 7.   | Sets MISSILE HEATER BREAKERS LAUNCH RAILS to the appropriate position.  | ✓    | ✓ | —    | — | —                  | — |
| 8.   | QUESTION: Ask the examinee, when should the missile heater circuit breakers be set to ON?   | ✓    | ✓ | —    | — | —                  | — |
|      | ANSWER: When the temperature is 40 degrees Fahrenheit or below.   | ✓    | ✓ | —    | — | —                  | — |

Sample Scoresheet No. 3

| Step | Performance Measures (Sequence is Scored)   | PASS                                | FAIL                                | REFRESHER TRAINING   |
|------|---|-------------------------------------|-------------------------------------|--|
| 9.   | Uses nomograph and sets ALTITUDE switch to the correct position. (Give the examinee the Altitude and Temperature reading that have been pre-recorded.)              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | TEC LESSON NO. 043-441-7801F, plus at least one supervised practice run. |
| 10.  | Sets MOUNT CONDITIONING switch to OFF.  | <input type="checkbox"/>            | <input type="checkbox"/>            | "  |
| 11.  | Sets MOUNT CONDITIONING BREAKER to ON.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | "  |
| 12.  | Sets BREAKERS-PWR SUPPLY to ON.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | "  |
| 13.  | Sets BREAKERS-MOUNT DRIVE to ON.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | "  |
| 14.  | Sets MODE switch to STANDBY.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | "  |
| 15.  | QUESTION: Why must the MODE switch be set to the STANDBY position before energizing the launching station?  |                                     |                                     |  |
|      | ANSWER: Because other MODE switch positions will damage the missile by allowing high voltages and high pressure air to be applied. Full gyro spinup may also occur. |                                     |                                     |  |
| 16.  | Sets azimuth and elevation brakes to the NORMAL position (fully counterclockwise).  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | "  |
| 17.  | QUESTION: Are the azimuth and elevation brakes engaged or disengaged in the fully counterclockwise position?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | "  |
|      | ANSWER: engaged.  |                                     |                                     |  |

Sample Scoresheet No. 3 (continued)

| <u>Step</u> | <u>Performance Measures (Sequence is Scored)</u>   | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHER TRAINING</u>  |
|-------------|--|-------------|-------------|--|
| 18          | Examinee completed the test within 12 minutes.   | —           | ✓           | TEC LESSON NO. 043-441-7801F, plus at least one supervised practice run. |
| 19.         | Examinee observed all safety warnings and cautions contained in TM 9-1440-585-10, Table 2-8. | ✓           | —           | “  |

Scorer's Note: Score the examinee a GO on the Testing Record for Test No. 1 if he PASSES all performance measures. If he fails one or more performance measures, he must receive the indicated refresher training, and then be given this complete test again. Record on the scoresheet any additional information about FAILED items that you feel will help you to provide the best refresher training. Record the total number of items PASSED and FAILED. Record elapsed time from beginning to end of test. Circle on each page the refresher training you must provide before he is retested.

TOTAL SCORE: PASS \_\_\_\_\_ FAIL \_\_\_\_\_  
 ELAPSED TIME: \_\_\_\_\_ minutes  
 SCORER'S NAME: \_\_\_\_\_

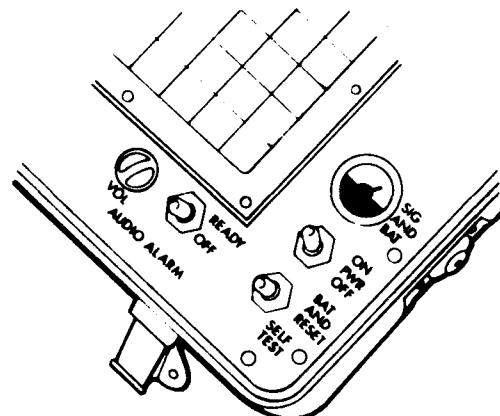
SECTION 6  
THE TADDS HANDOUT

PROCEDURES FOR PERFORMING  
THE TADDS BATTERY CHECK  
AND  
THE TADDS SELF-CHECK

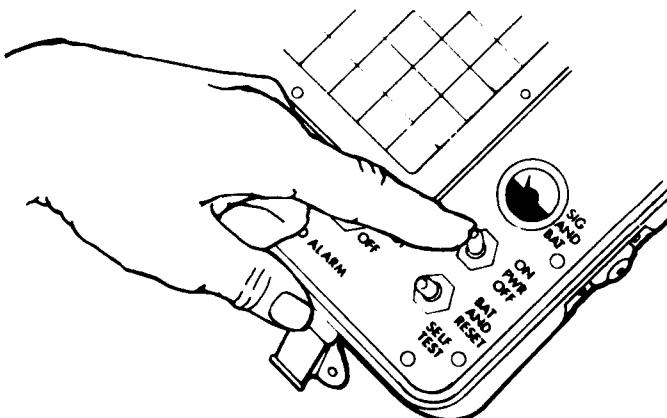
TEST NO. 1

BATTERY VOLTAGE CHECK

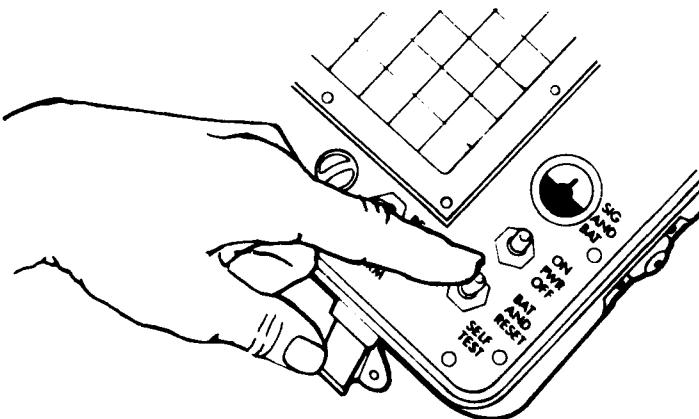
VOLTAGE CHECK I



1. The first operational check on the TADDS is the battery voltage check. Low battery voltage is the most frequent reason for the TADDS not working properly.

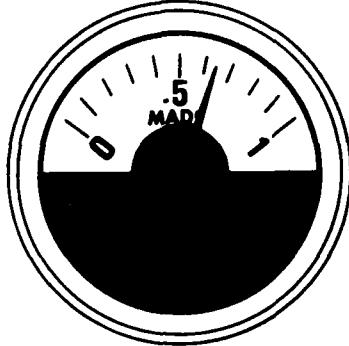


2. Begin by opening the TADDS and setting the PWR switch to ON.



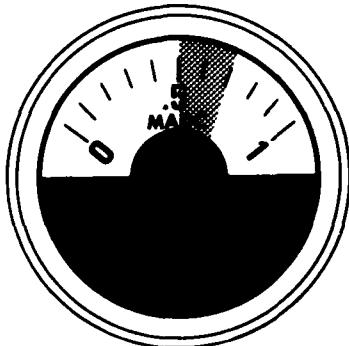
3. Then press and hold this switch at the BAT AND RESET position.

4.  
Check the position of the  
needle on this meter.



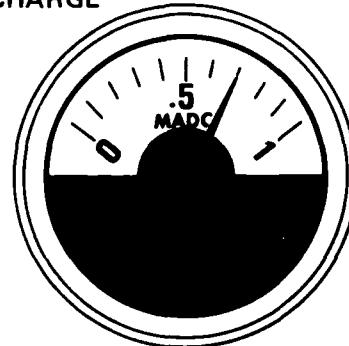
METER INTERPRETATION (Steps 5  
through 9)

5.  
For the TADDS to operate, the  
needle on the meter should always  
be in this part of the scale,  
between .5 and .7 on the dial.



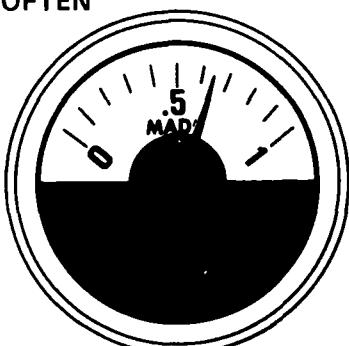
FULL CHARGE

6.  
When the meter indicates .7,  
the battery is fully charged.



CHECK OFTEN

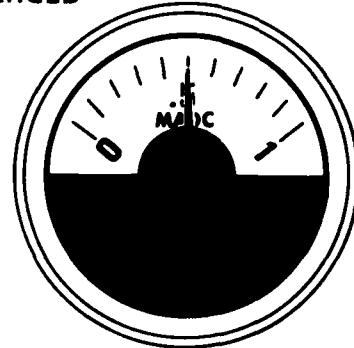
7.  
If it is nearer the .6 than .7,  
the battery is low and should be  
checked often during operations.



8.

If the needle is at .6 or just below that point, the battery will operate the TADDS for 2 more hours. When it is at the .5 mark, the battery is completely discharged.

DISCHARGED

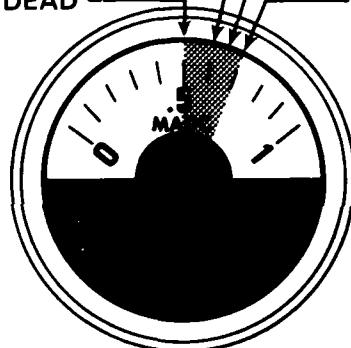


9.

Remember these four important meter indications and what each means.

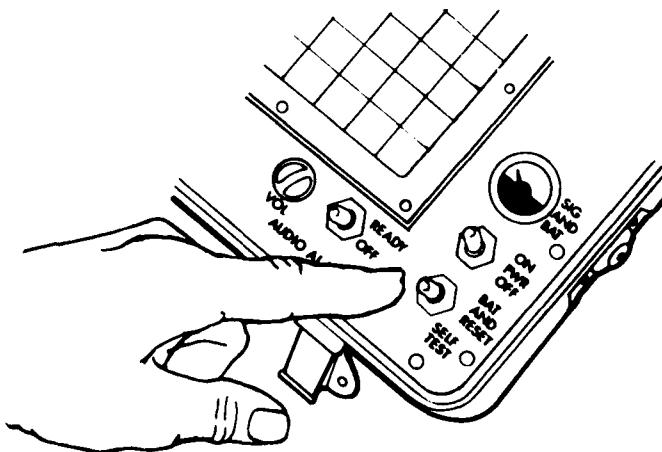
TWO HOURS —————— CHECK OFTEN

DEAD —————— FULL CHARGE



10.

To finish the TADDS battery check, release the BAT AND RESET/SELF TEST switch and set the PWR switch to OFF.

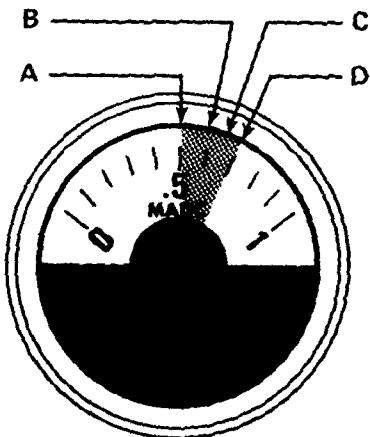


Question 1. List these procedures for checking battery voltage in proper order: PWR switch OFF; check meter; PWR switch ON; BAT AND RESET/SELF TEST switch to BAT AND RESET.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

Question 2. Which of these arrows indicate:

- 2 hours time remaining.
- battery should be checked often.
- battery fully charged.
- battery dead.



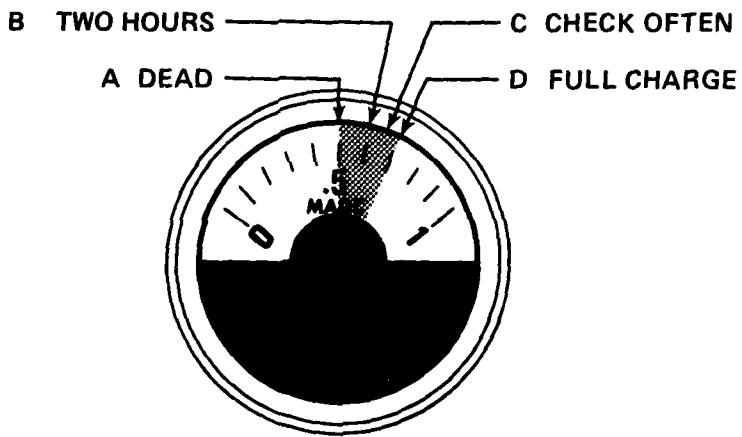
THIS COMPLETES THE TADDS BATTERY VOLTAGE CHECK. IF YOU HAD A PROBLEM WITH ANY PART OF THE TEST, GO BACK AND REPEAT THAT CHECK. GO TO PAGE 6-6 AND CHECK YOUR ANSWERS.

CHECK YOUR ANSWERS HERE.  
IF YOU SELECTED THE WRONG  
ANSWER, GO BACK AND REVIEW  
THAT CHECK.

Answers

Question 1. a. PWR switch ON  
b. BAT and RESET/SELF TEST switch to BAT AND RESET  
c. check meter  
d. PWR switch OFF

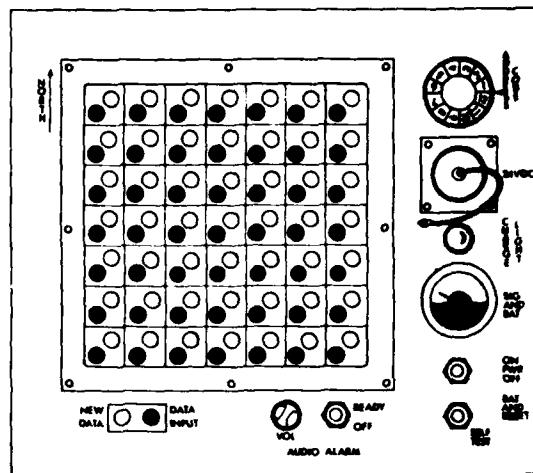
Question 2. Look at the illustration below and check your answers.



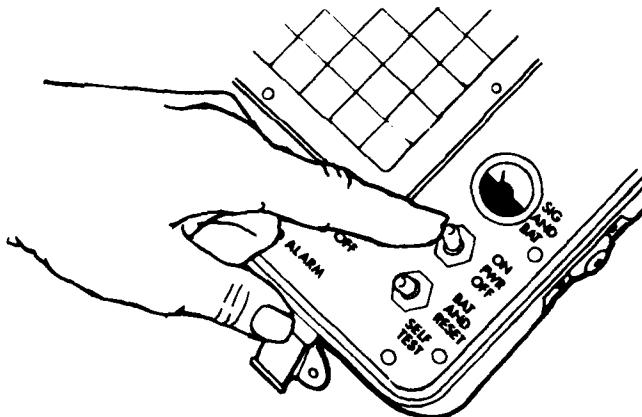
TEST NO. 2

PERFORMING THE TADDS SELF-TEST CHECK

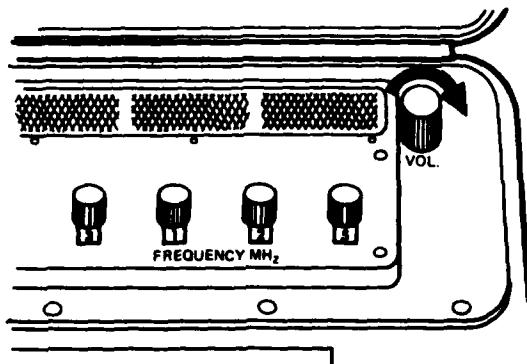
1. This check assures you that all the colored disk indicators on the TADDS display are working, and to check that the AUDIO ALARM works.



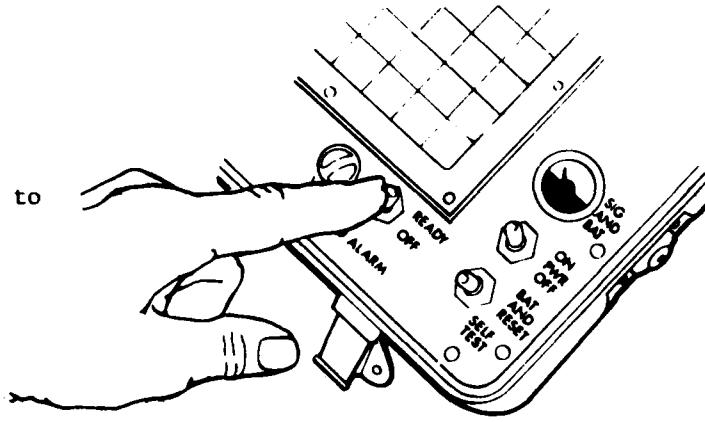
2. First, set the PWR switch to ON.



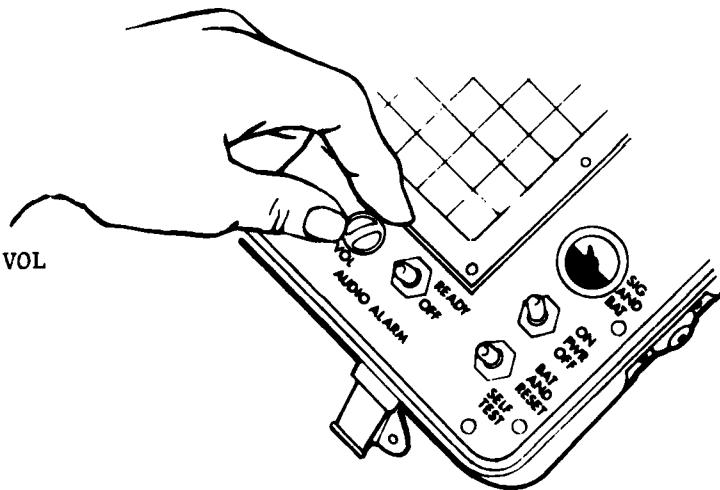
3. Then turn the FM receiver VOL control fully clockwise.



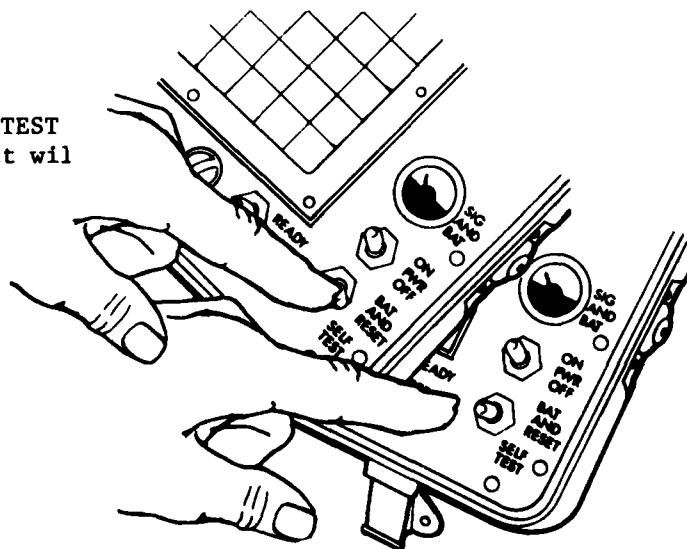
4.  
Set the AUDIO ALARM switch to  
READY.



5.  
Now turn the AUDIO ALARM VOL  
control fully clockwise.

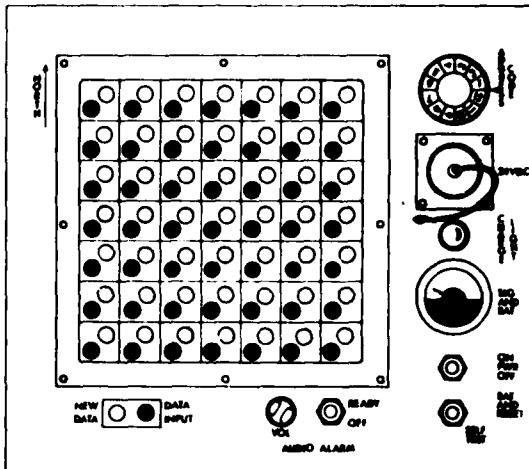


6.  
Push this switch to the SELF TEST  
position and release it. That will  
activate the self-test cycle.



7.

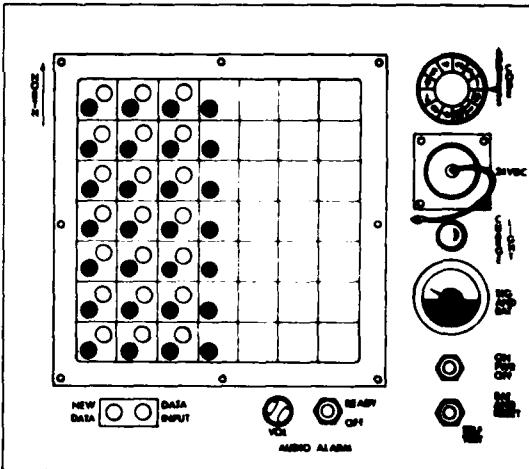
Activating the SELF-TEST will cause all the disk indicators on the displays to turn so that they show orange and green sides. At the end of each cycle, the AUDIO ALARM will sound. All 49 matrix squares must show both orange and green.



8.

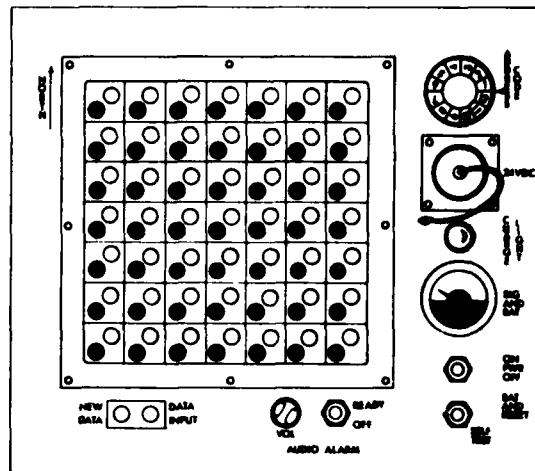
Here is the sequence you will see on the TADDS. First, both halves of the matrix will start out black. The DATA INPUT indicator will show green momentarily, then black. The AUDIO ALARM will sound two beeps.

The left 3 rows of the matrix will show orange and green, and the middle row will show only orange from top to bottom in sequence, and the DATA INPUT indicator will show green momentarily, then black.



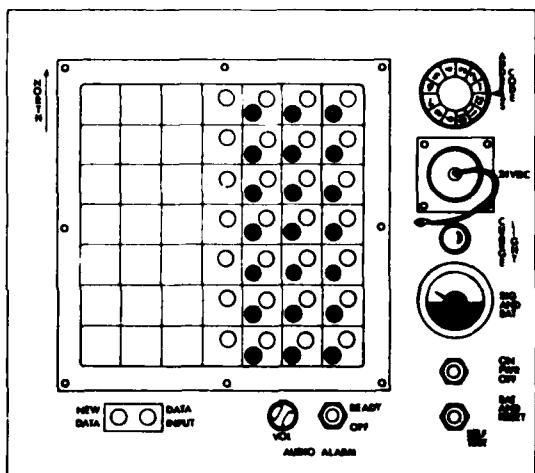
10.

The NEW DATA indicator will show orange momentarily, then black. The AUDIO ALARM will sound one beep and the right half (3½ rows of the matrix indicators) will show orange and green from top to bottom in sequence.



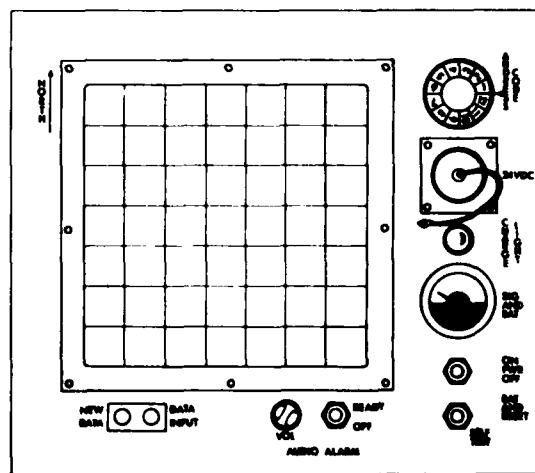
11.

The left half (3½ rows) will erase from top to bottom in sequence. The DATA INPUT indicator will show green, then black, and the NEW DATA indicator will show orange, then black.



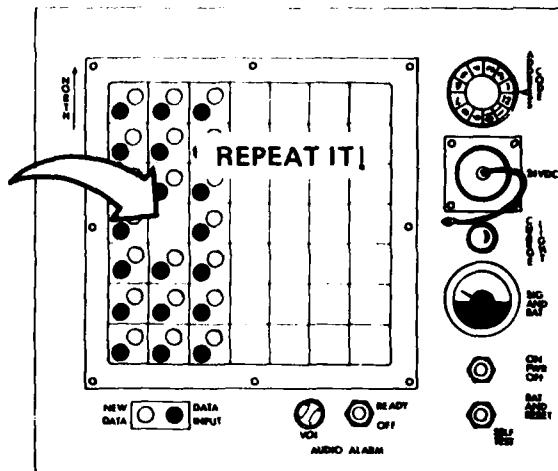
12.

The AUDIO ALARM will sound two beeps and the right half (3½ rows) of the matrix indicator will erase from top to bottom in sequence. At this point, set the PWR switch to OFF.



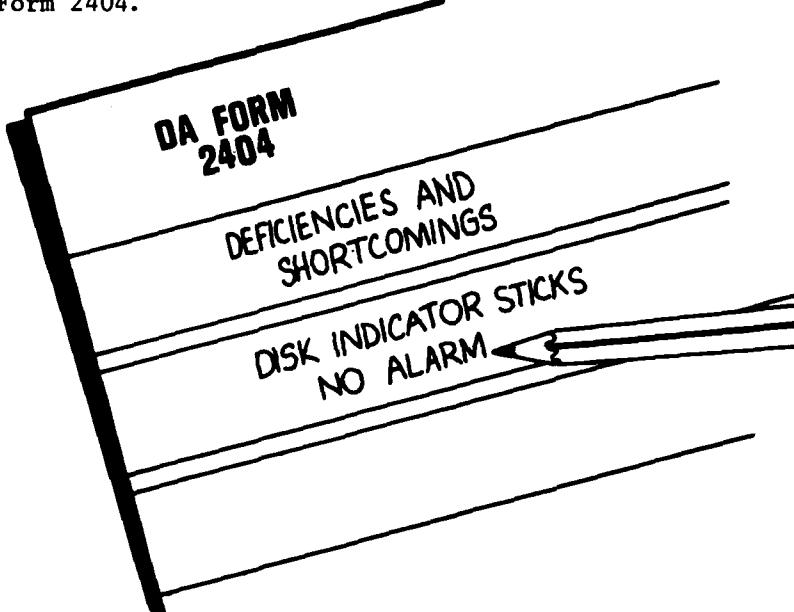
13.

You may want to repeat the test several times to be sure all the indicators flip. If you detect a failure, make sure there is a real problem by repeating the test.



14.

If a condition persists, report the problem to organizational maintenance on a DA Form 2404.



THIS COMPLETES THE TADDS SELF-CHECK

CHAPARRAL PERFORMANCE TESTING RECORD

NAME \_\_\_\_\_

SSN \_\_\_\_\_

MOS \_\_\_\_\_

UNIT \_\_\_\_\_

TEST DATE \_\_\_\_\_

AIT GRADUATION DATE \_\_\_\_\_

TEST SCORE SUMMARY

|        | TOTAL NUMBER OF CHECKS |             | RESULT        |           |              |
|--------|------------------------|-------------|---------------|-----------|--------------|
|        | <u>PASS</u>            | <u>FAIL</u> | <u>% PASS</u> | <u>GO</u> | <u>NO GO</u> |
| TEST 1 | _____                  | _____       | _____         | _____     | _____        |
| TEST 2 | _____                  | _____       | _____         | _____     | _____        |
| TEST 3 | _____                  | _____       | _____         | _____     | _____        |
| TEST 4 | _____                  | _____       | _____         | _____     | _____        |
| TEST 5 | _____                  | _____       | _____         | _____     | _____        |
| TEST 6 | _____                  | _____       | _____         | _____     | _____        |

SCORER'S NOTES:

1. Reasons for failures: \_\_\_\_\_

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2. Special Considerations for Refresher Training: \_\_\_\_\_

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## CHAPARRAL PERFORMANCE TESTS

### General Instructions for Administering and Scoring

1. Have the examinee fill in the items at the top of the Testing Record sheet attached to his test booklet. Be sure all items are legible. Be sure MOS includes skill level.
2. Verify examinee's identity by his ID card.
3. The examinee is not to be informed of his progress during performance of the test. You will score each performance measure (step) either PASS or FAIL as it is performed and check the appropriate space on the scoresheet.
4. If an equipment malfunction affecting the test occurs either before or during testing, the malfunction must be corrected before the test is completed. Note such interruptions on the scoresheet, but NEVER LEAVE ANY PERFORMANCE MEASURE INCOMPLETE. You risk invalidating the entire test if an examinee is not tested on exactly the same items as everyone else.
5. You will not coach the examinee or answer questions about the steps he must perform.
6. Arrange the test site so that waiting examinees cannot observe or hear the ongoing testing.
7. If the examinee does not correctly complete all of the performance measures for a given test, he will receive a NO GO for that test, and you (his Squad Leader) will provide him with refresher training on the areas he missed.
8. Read to the examinee the instructions that are printed in capital letters at the top of the scoresheet. Read the exact words aloud. When you have finished reading the instructions, ask the examinee if he understands what he is required to do. If he does not understand, read the instructions again. If he still does not understand, tell him to do the best he can, and begin.
9. Time each test, and write the time it took the examinee to complete it on the last page of the scoresheet.
10. To achieve total standardization of testing, YOU MUST STRICTLY ADHERE TO THE INSTRUCTIONS STATED ABOVE.
11. The following pages present detailed lists of things you will need to have on hand and equipment preparation that will be your responsibility for each of the six Chaparral performance tests.

TEST NO. 1

SCORER'S INSTRUCTIONS

PRE-ENERGIZING THE M-54 LAUNCH STATION

Objective

To measure the examinee's ability to pre-energize the M-54 launch station in accordance with the steps in TM 9-1440-585-10, Table 2-8.

Equipment Requirements

- a. M-54 Launch Station
- b. TM 9-1440-585-10
- c. Scorer's clipboard
- d. Scorer's ballpoint pen
- e. Scorer's watch

Personnel Requirements

- a. One scorer with 16P MOS
- b. One examinee with 16P MOS

Pretest Preparation

- a. Environment: outdoors (or indoors with proper ventilation) on a level surface, in daylight, no precipitation, and 30°-90°F.
- b. Test Layout
  - (1) Insure that all equipment is operational, and all component parts are present.
  - (2) Set the following switches to OFF: MASTER POWER, COMM, PRIME POWER, ERECT-RETRACT BREAKER, MISSILE HEATER BREAKERS LEFT STORED, MISSILE HEATER BREAKERS RIGHT STORED, MISSILE HEATER BREAKERS LAUNCH RAILS, MOUNT CONDITIONING, MOUNT CONDITIONING BREAKER, BREAKERS-MOUNT DRIVE, and BREAKERS-PWR SUPPLY.
  - (3) Set the MODE switch to TEST.
  - (4) Set the ALTITUDE switch to LOW.
  - (5) Record the altitude and temperature readings (for the local area) to be used in testing.

## TEST NO. 1

## SCORESHEET FOR PRE-ENERGIZING THE M-54 LAUNCH STATION

Instructions to Examinee. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO SET ALL SWITCHES AND CONTROLS ON THE M-54 LAUNCH STATION TO THE PRE-ENERGIZE POSITION ACCORDING TO TM 9-1440-585-10 TABLE 2-8, PAGE 2-8." (Note: Scorer will open TM 9-1440-585-10 to page 2-8 for the examinee.) "THE ALTITUDE SETTING YOU WILL USE IS \_\_\_\_\_ AND THE TEMPERATURE SETTING IS \_\_\_\_\_. THESE READINGS WILL BE USED FOR YOUR TEST. IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURE IN THE TECH MANUAL TO PERFORM THIS TASK. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST IN 12 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| <u>Step</u> | <u>Performance Measures (Sequence is Scored)</u>  | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHER TRAINING</u>  |
|-------------|---|-------------|-------------|--|
| 1.          | Sets the MASTER POWER switch to OFF.  | ____        | ____        | TEC LESSON NO. 043-441-7801F, <u>P</u> lus at least one supervised practice run. |
| 2.          | Sets COMM switch to OFF.  | ____        | ____        | "  |
| 3.          | Sets the PRIME POWER switch to OFF.   | ____        | ____        | "  |
| 4.          | Sets the ERECT-RETRACT BREAKER to ON.   | ____        | ____        | "  |
| 5.          | If the temperature is above 40 degrees Farenheit, sets the MISSILE HEATER BREAKERS STORED LEFT to OFF. If the temperature is below 40 degrees Farenheit, sets it to ON. | ____        | ____        | "  |
| 6.          | Sets MISSILE HEATER BREAKERS RIGHT STORED to the appropriate position.  | ____        | ____        | "  |
| 7.          | Sets MISSILE HEATER BREAKERS LAUNCH RAILS to the appropriate position.  | ____        | ____        | "  |
| 8.          | QUESTION: Ask the examinee, when should the missile heater circuit breakers be set to On?<br>ANSWER: When the temperature is 40 degrees Farenheit or below.             | ____        | ____        | "  |

| Step | Performance Measures (Sequence is Scored)  | PASS  | FAIL  | REFRESHER TRAINING   |
|------|--|-------|-------|--|
| 9    | Uses nomograph and sets ALTITUDE switch to the correct position. (Give the examinee the Altitude and Temperature reading that have been pre-recorded.)                     | _____ | _____ | TEC LESSON NO. 043-441-17801F, <u>plus</u> at least one supervised practice run. |
| 10.  | Sets MOUNT CONDITIONING switch to OFF.   | _____ | _____ | "  |
| 11.  | Sets MOUNT CONDITIONING BREAKER to ON.   | _____ | _____ | "  |
| 12.  | Sets BREAKERS-PWR SUPPLY to ON.  | _____ | _____ | "  |
| 13.  | Sets BREAKERS-MOUNT DRIVE to ON.   | _____ | _____ | "  |
| 14.  | Sets MODE switch to STANDBY.   | _____ | _____ | "  |
| 15.  | <u>QUESTION:</u> Why must the MODE switch be set to the STANDBY position before energizing the launching station?  |       |       |  |
|      | <u>ANSWER:</u> Because other MODE switch positions will damage the missile by allowing high voltages and high pressure air to be applied. Full gyro spinup may also occur. |       |       |  |
| 16.  | Sets azimuth and elevation brakes to the NORMAL position (fully counterclockwise).   | _____ | _____ | "  |
| 17.  | <u>QUESTION:</u> Are the azimuth and elevation brakes engaged or disengaged in the fully counterclockwise position?  |       |       |  |
|      | <u>ANSWER:</u> engaged.  | _____ | _____ | "  |

| <u>Step</u> | <u>Performance Measures (Sequence is Scored)</u>   | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHER TRAINING</u>  |
|-------------|--|-------------|-------------|--|
| 18          | Examinee completed the test within 12 minutes.   | _____       | _____       | TEC LESSON NO. 043-441-7801F, plus at least one supervised practice run. |
| 19.         | Examinee observed all safety warnings and cautions contained in TM 9-1440-585-10, Table 2-8. | _____       | _____       | "  |

Scorer's Note: Score the examinee a GO on the Testing Record for Test No. 1 if he PASSES all performance measures. If he fails one or more performance measures, he must receive the indicated refresher training, and then be given this complete test again. Record on the scoresheet any additional information about FAILED items that you feel will help you to provide the best refresher training. Record the total number of items PASSED and FAILED. Record elapsed time from beginning to end of test. Circle on each page the refresher training you must provide before he is retested.

TOTAL SCORE: PASS \_\_\_\_\_ FAIL \_\_\_\_\_  
 ELAPSED TIME: \_\_\_\_\_ minutes  
 SCORER'S NAME: \_\_\_\_\_

TEST NO. 2  
SCORER'S INSTRUCTIONS  
ENERGIZING THE M-54 LAUNCH STATION

Objective

To measure the examinee's ability to energize the M-54 launch station in accordance with the steps in TM 9-1440-585-10, Table 2-9.

Equipment Requirements

- a. M-54 Launch Station
- b. TM 9-1440-585-10 (with change 2)
- c. Scorer's clipboard
- d. Scorer's ballpoint pen
- e. Scorer's watch

Personnel Requirements

- a. One scorer with 16P MOS
- b. One examinee with 16P MOS

Pretest Preparation

- a. Environment: outdoors (or indoors with proper ventilation) on a level surface, in daylight, no precipitation, and 30°-90°F.
- b. Test Layout
  - (1) Insure that all equipment is operational, and all component parts are present.
  - (2) Using Table 2-8 of TM 9-1440-585-10, insure that all control settings are properly set to the pre-energized position.
  - (3) Open the rear compartment door.
  - (4) Disable the structure vent fan by disconnecting electrical power to the fan.

## SCORESHEET FOR ENERGIZING THE M-54 LAUNCH STATION

Instructions to Examinee. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO ENERGIZE THE M-54 LAUNCH STATION ACCORDING TO TM 9-1440-585-10, TABLE 2-9, PAGE 2-10. (Note: Scorer will open TM 9-1440-585-10 to page 2-30 for the examinee.)" "IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURE IN THE TECH MANUAL TO PERFORM THIS TASK. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST WITHIN 15 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step | Performance Measures (Sequence is Scored)   | PASS | FAIL | REFRESHER TRAINING   |
|------|---|------|------|--|
| 1.   | If the <u>temperature</u> is below 40 degrees <u>Fahrenheit</u> , the examinee sets the BATTERY HEATER switch to PRIME for ten seconds and then sets the BATTERY HEATER switch to ON. After starting the battery heater the examinee detects the structure vent fan fails to operate. (Examinee must report the failure to pass this step.) | —    | —    | TEC LESSON NO. 043-441-7803F and 7804F, plus at least one supervised practice run. |
|      | -OR-  |      |      |  |
| 2.   | If the temperature is above 40 degrees <u>Fahrenheit</u> , the examinee does not start the battery heater and will not detect the vent fan failure at this time. The examinee must close the rear compartment door.   | —    | —    | "  |
| 3.   | Sets the MASTER POWER switch to ON.   | —    | —    | "  |
| 4.   | Sets the PRIME POWER switch to MAN.   | —    | —    | "  |
| 5.   | If the battery heater was not started, the failure of the structure vent fan must be detected at this time. After the examinee has detected the structure vent fan failure, reconnect electrical power to the fan and tell the examinee to continue with the energizing procedure.  | —    | —    | "  |

| Step | Performance Measures (Sequence is Scored)  | PASS | FAIL | REFRESHER TRAINING  |
|------|--|------|------|---|
| 6.   | The examinee must wait one minute after the structure vent fan starts and then press the MAN START button. If the MPU fails to start after 10 seconds, the examinee should release the MAN START button and then press it again.   |      |      | TEC LESSON NO. 043-441-7803F and 7804F,<br>plus at least one supervised practice run. |
| 7.   | Sets the MASTER POWER and COMM switches to ON.   |      |      | "   |
| 8.   | Sets the PRIME POWER switch to AUTO.   |      |      | "   |
| 9.   | Sets MOUNT POWER switch to ON. Examinee checks that MOUNT POWER lamp lights, INTERLOCK OVERRIDE lamp lights, (only if canopy is open), one MISSILE SELECT lamp lights (only if a missile or cryostat is on a rail), DRIVE SYSTEM warning lamp lights, mount vent fan operates.         |      |      | "   |
| 10.  | When the MPU engine cycles to off, the examinee sets the MODE switch to TEST, READY, and OPERATE. Engine starts in all positions except STANDBY. If engine hasn't stopped after one minute, tell the examinee to go on to the next step, come back to this one when engine cycles off. |      |      | "   |
| 11.  | The examinee checks that all rear doors and deck doors are securely closed and latched.  |      |      | "   |
| 12.  | The examinee raises and secures the tailgate. (Assist the examinee in raising the tailgate.)   |      |      | "   |
| 13.  | The examinee places fuel tank overflow vents over the tailgate.  |      |      | "   |

| <u>Step</u> | <u>Performance Measures (Sequence is Scored)</u>   | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHR TRAINING</u>  |
|-------------|--|-------------|-------------|---|
| 14.         | The examinee enters the gunner's compartment, closes and latches the canopy, and connects the headset. CAUTION: He must not grip the canopy support activators when closing the canopy.                            | _____       | _____       | TEC LESSON NO. 043-441-7803F and 7804F,<br>plus at least one supervised practice run. |
| 15.         | The examinee rotates the sight to the action position.   | _____       | _____       | "   |
| 16.         | The examinee adjusts the seat height, if necessary, to obtain the best sighting position.  | _____       | _____       | "   |
| 17.         | The examinee adjusts the MOUNT CONDITIONING controls to the desired position. Note: Tell the examinee not to erect the mount or establish communication at this time. He should go on to Step 18 in the procedure. | _____       | _____       | "   |
| 18.         | The examinee adjusts the sight reticle brightness.   | _____       | _____       | "   |
| 19.         | The examinee adjusts the MISSILE TONE VOLUME control so that the interlock warning tone is clearly heard.  | _____       | _____       | "   |
| 20.         | Examinee completed the test within 15 minutes.   | _____       | _____       | "   |
| 21.         | Examinee observed all safety warnings and cautions contained in TM 9-1440-585-10, Table 2-9.   | _____       | _____       | "   |

Scorer's Note: Score the examinee a GO on the Testing Record for Test No. 2 if he PASSES all performance measures. If he fails one or more performance measures, he must receive the indicated refresher training, and then be given this complete test again. Record on the scoresheet any additional information about FAILED items that you feel will help you to provide the best refresher training. Record the total number of items PASSED and FAILED. Record elapsed time from beginning to end of test. Circle on each page the refresher training you must provide before he is retested.

Step      Performance Measures (Sequence is Scored)

PASS      FAIL      FAIL      REFRESHER TRAINING

TOTAL SCORE:      PASS      FAIL  
ELAPSED TIME:      Minutes  
SCORER'S NAME: \_\_\_\_\_

TEST NO. 3  
SCORER'S INSTRUCTIONS  
DEENERGIZING THE M-54 LAUNCH STATION

Objective

To measure the examinee's ability to deenergize the M-54 launch station in accordance with the steps in TM 9-1440-585-10, Table 2-12.

Equipment Requirements

- a. M-54 Launch Station
- b. TM 9-1440-585-10
- c. Scorer's clipboard
- d. Scorer's ballpoint pen
- e. Scorer's watch

Personnel Requirements

- a. One scorer with 16P MOS
- b. One examinee with 16P MOS

Pretest Preparation

- a. Environment: outdoors (or indoors with proper ventilation) on a level surface, in daylight, no precipitation, and 30°-90°F.
- b. Test layout
  - (1) Insure that all equipment is operational, and all component parts are present.
  - (2) Using Table 2-9 of TM 9-1440-585-10, insure that the launch station is properly energized.
  - (3) Insure that the trigger lock switch is set to OFF and the key is removed.

## TEST NO. 3

## SCORESHEET FOR DEENERGIZING THE M-54 LAUNCH STATION

Instructions to Examinee. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO DEENERGIZE THE M-54 LAUNCH STATION ACCORDING TO TM 9-1440-585-10, TABLE 2-12, PAGE 2-42." (Note: Scorer will open TM 9-1440-585-10 to page 2-42 for the examinee.) "IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURE IN THE TECH MANUAL TO PERFORM THIS TASK. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST WITHIN 10 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step | Performance Measures (Sequence is Scored)         | Pass | Fail | Refresher Training  |
|------|---|------|------|---|
| 1.   | Sets ARM switch to OFF.                           | ____ | ____ | TEC LESSON NO. 043-441-7801F, <u>plus</u> at least one supervised practice run. |
| 2.   | Sets MODE switch to STANDBY.                      | ____ | ____ | "   |
| 3.   | Sets INTERLOCK OVERRIDE switch to NORMAL.         | ____ | ____ | "   |
| 4.   | Sets MOUNT CONDITIONING switch to OFF.            | ____ | ____ | "   |
| 5.   | Sets MOUNT CONDITIONING BREAKER to OFF.           | ____ | ____ | "   |
| 6.   | Sets MOUNT POWER switch to OFF.                   | ____ | ____ | "   |
| 7.   | Sets MIKE switch to OFF.                          | ____ | ____ | "   |
| 8.   | Insures that sight is rotated to stowed position. | ____ | ____ | "   |
| 9.   | Sets BATTERY HEATER switch to OFF.                | ____ | ____ | "   |
| 10.  | Sets PRIME POWER switch to OFF.                   | ____ | ____ | "   |
| 11.  | Sets MASTER POWER switch to OFF.                  | ____ | ____ | "   |
| 12.  | Sets COMM switch to OFF.                          | ____ | ____ | "   |

| <u>Step</u> | <u>Performance Measures (Sequence is Scored)</u>  | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHER TRAINING</u>  |
|-------------|---|-------------|-------------|--|
| 13.         | Examinee completed the test within 10 minutes.  | _____       | _____       | TEC LESSON NO. 043-441-7801F, plus at least one supervised practice run. |
| 14.         | Examinee observed all safety warnings and cautions contained in TM 9-1440-585-10, Table 2-12. | _____       | _____       | "  |

**Scorer's Note:** Score the examinee a GO on the Testing Record for Test No. 3 if he PASSES all performance measures. If he fails one or more performance measures, he must receive the indicated refresher training, and then be given this complete test again. Record on the scoresheet any additional information about FAILED items that you feel will help you to provide the best refresher training. Record the total number of items PASSED and FAILED. Record elapsed time from beginning to end of test. Circle on each page the refresher training you must provide before he is retested.

TOTAL SCORE: PASS \_\_\_\_\_ FAIL \_\_\_\_\_  
 ELAPSED TIME: \_\_\_\_\_ minutes  
 SCORER'S NAME: \_\_\_\_\_

TEST NO. 4

SCORER'S INSTRUCTIONS

BEFORE OPERATIONS PM CHECKS ON THE M730 CARRIER

Objective

To measure the examinee's ability to perform the BEFORE OPERATIONS checks on the M730 Carrier in accordance with the steps in TM 9-1450-585-10, Table 3-1.

Equipment Requirements

- a. M730 Carrier
- b. TM 9-1450-585-10
- c. Scorer's clipboard
- d. Scorer's ballpoint pen
- e. Scorer's watch

Personnel Requirements

- a. One scorer with 16P MOS
- B. One examinee with 16P MOS

Pretest Preparation

- a. Environment: outdoors or indoors on a level surface, in daylight, no precipitation, and 30°-90°F.
- b. Test layout
  - (1) Insure that all equipment is operational, and all component parts are present.
  - (2) The M730 carrier should be parked on a level surface with the brakes engaged.
  - (3) Set the AIR BOX HEATER switch, WIPER switch, FUEL PUMP switch driving light selector, BILGE PUMPS switch, master switch and dome light switch to OFF.
  - (4) Remove both wires from the left infrared light.

## TEST NO. 4

## SCORESHEET FOR PERFORMING M730 CARRIER BEFORE OPERATIONS PM CHECKS

Instructions to Examinee. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO PERFORM BEFORE OPERATION PM CHECKS ON THE M730 CARRIER ACCORDING TO TM 9-1450-585-10, TABLE 3-1, PAGE 3-4." (Note: Scorer will open TM 9-1450-585-10 to page 3-4, Table 3-1 for the examinee.) "IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURE IN THE TECH MANUAL TO PERFORM YOUR CHECKS. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST WITHIN 40 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step | Performance Measures (Sequence not Scored)  | PASS  | FAIL  | REFRESHER TRAINING               |
|------|---|-------|-------|----------------------------------|
| 1.   | Checks the tracks, road wheels, idler wheels, and sprockets for excessive wear or damage.   | _____ | _____ | Demonstration/Practice           |
| 2.   | <u>QUESTION:</u> What would you do if you found a defective carrier component?<br><u>ANSWER:</u> Record the defect on DA Form 2404 and report it to organizational maintenance. | _____ | _____ | Review Paragraphs 3-12 thru 3-16 |
| 3.   | Checks shock absorbers and torsion bars.  | _____ | _____ | Demonstration/Practice           |
| 4.   | <u>QUESTION:</u> How can you tell if any of the torsion bars are broken?<br><u>ANSWER:</u> The road wheel will lift easily.   | _____ | _____ | Review Table 3-1                 |
| 5.   | Checks idler and road wheels for correct oil level.   | _____ | _____ | Demonstration/Practice           |
| 6.   | <u>QUESTION:</u> What is the correct oil level?<br><u>ANSWER:</u> Oil should be visible halfway up the sight indicator.   | _____ | _____ | Review Table 3-1                 |

| <u>Step</u> | <u>Performance Measures (Sequence not Scored)</u>  | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHER TRAINING</u>      |
|-------------|--|-------------|-------------|--------------------------------|
| 7.          | <p><u>QUESTION:</u> Using TM 9-1450-585-10, Paragraph 3-35 as an aid, show where you will measure track tension.</p> <p><u>ANSWER:</u> Between the bottom of the track and the top of the second road wheel</p>                | _____       | _____       | Review Paragraph 3-35          |
| 8.          | <p><u>QUESTION:</u> Using TM 9-1450-585-10 Paragraph 3-35 again, tell how much space should be between the bottom of the track and the top of the second road wheel.</p> <p><u>ANSWER:</u> Between 3/8 and 5/8 of an inch.</p> | _____       | _____       | Review Paragraph 3-35          |
|             | TELL THE EXAMINEE TO SKIP CHECKS 2 AND 3 AND CONTINUE WITH CHECK 4.  |             |             |                                |
| 9.          | Correctly checks coolant level. (Level to bottom of filler neck.)  | _____       | _____       | Demonstration/Practice         |
| 10.         | <p><u>QUESTION:</u> What should the correct coolant level be?</p> <p><u>ANSWER:</u> To the bottom of the filler neck.</p>  | _____       | _____       | Review Table 3-1               |
|             | TELL THE EXAMINEE TO SKIP CHECK 5 AND CONTINUE WITH CHECK 6.   |             |             |                                |
| 11.         | Correctly inspects fuel system for leaks. Interprets fuel quantity indicator.  | _____       | _____       | Demonstration/Practice         |
| 12.         | <p><u>QUESTION:</u> What level is the fuel quantity indicator reading on this vehicle?</p> <p><u>ANSWER:</u> Correctly states fuel level for test vehicle.</p>   | _____       | _____       | Review gauge-reading procedure |

| <u>Step</u>   | <u>Performance Measures (Sequence not Scored)</u>  | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHER TRAINING</u>               |
|---|--|-------------|-------------|---|
| 13.   | Correctly locates drive belts and checks them for defects. (Examinee is not required to check transfer gear drive belts for this test.)  | _____       | _____       | Demonstration/Practice                  |
| 14.   | Correctly inspects batteries for electrolyte level, terminals and cables for corrosion and a coating of grease. Checks for loose hold-down clamps.   | _____       | _____       | Demonstration/Practice                  |
| 15.   | <u>QUESTION:</u> What should you use to clean the batteries?   | _____       | _____       | <u>Review Paragraphs 3-21, 3-22</u>     |
|   | <u>ANSWER:</u> A solution of bicarbonate of soda and water.  | _____       | _____       |   |
| 16.   | Correctly inspects all fire extinguishers for serviceable seals, safety wire and inspection tags.  | _____       | _____       | Demonstration/Practice                  |
| 17.   | <u>QUESTION:</u> What should you do if you find a fire extinguisher with a broken safety wire?   | _____       | _____       | <u>Review Paragraphs 3-14 thru 3-16</u> |
|   | <u>ANSWER:</u> Report the deficiency on DA Form 2404 to organizational maintenance.  | _____       | _____       |   |
| <u>INFORM THE EXAMINEE TO SKIP CHECK 10 AND CONTINUE WITH CHECK 11.</u> |  |             |             |   |
| 18.   | Correctly checks driving lights. Examinee must detect that the left infrared light is defective.   | _____       | _____       | Demonstration/Practice                  |
| 19.   | Correctly inspects the following controls: steering, braking, shifting, and accelerator. Examinee checks for binding, grabbing, and excessive play. Checks pivot steer brake disks for rust, oil and grease. | _____       | _____       | Demonstration/Practice                  |

| Step | Performance Measures (Sequence not Scored)  | Pass  | Fail  | Refresher Training               |
|------|---|-------|-------|----------------------------------|
| 20.  | Correctly checks warning light indications (with engine stopped). MASTER switch ON, all warning lights should be OFF except LOW OIL pressure light. Battery indicator in red or yellow zone, fuel indicating level of fuel in the tank. Have examinee point out warning indicators. | _____ | _____ | Demonstration/Practice           |
| 21.  | Correctly checks for oil leaks (cold checks, engine <u>not</u> running). Examinee must physically locate gage rods and check the oil level in the engine, transmission, differential and final drives.  | _____ | _____ | Demonstration/Practice           |
| 22.  | Correctly locates and checks the Air Cleaner. Examinee must determine the type of filter installed and state how he will make the check.  | _____ | _____ | Demonstration/Practice           |
| 23.  | <u>QUESTION:</u> When should the Air Cleaner element be cleaned?  | _____ | _____ | Review Table 3-1                 |
|      | ANSWER: After operation in dust or sand (Serial No. 1 thru 308) or when the indicator shows in the red area (Serial No. 309 and up).  | _____ | _____ |                                  |
| 24.  | <u>QUESTION:</u> What should be used to clean the Air Cleaner element?  | _____ | _____ | Review Paragraphs 3-23 thru 3-27 |
|      | ANSWER: Compressed air or soapy water.  | _____ | _____ |                                  |
| 25.  | Examinee completed the test within 40 minutes.  | _____ | _____ | Practice                         |

Step      Performance Measures (Sequence not Scored)      PASS      FAIL      REFRESHER TRAINING

26.      Examinee observed all safety WARNINGS and CAUTIONS contained in TM 9-1450-585-10, Table 3-1.      \_\_\_\_\_

Demonstration/Practice

Scorer's Note: Score the examinee a GO on the Testing Record for Test No. 4 if he PASSES all performance measures. If he fails one or more performance measures, he must receive the indicated refresher training, and then be given this complete test again. Record on the scoresheet any additional information about FAILED items that you feel will help you to provide the best refresher training. Record the total number of items PASSED and FAILED. Record elapsed time from beginning to end of test. Circle on each page the refresher training you must provide before he is retested.

TOTAL SCORE:      PASS \_\_\_\_\_      FAIL \_\_\_\_\_  
ELAPSED TIME:      \_\_\_\_\_ Minutes  
SCORER'S NAME \_\_\_\_\_

TEST NO. 5

SCORER'S INSTRUCTIONS

OPERATIONAL CHECKS ON THE TA-312/PT TELEPHONE SET

Objective

To measure the examinee's ability to correctly install and operate the TA-312/PT telephone set in accordance with steps in TM 11-5805-201-12, Paragraphs 2-3A, C, D, and F, and 3-2C (LB operation).

Equipment Requirements

- a. Two TA-312 Telephone Sets (in cases)
- b. TM 11-5805-201-12
- c. One flat tip screwdriver
- d. One pliers TL-13A
- e. Six batteries BA-30
- f. One reel of field wire WD-1/TT
- g. Scorer's ballpoint pen
- h. Scorer's clipboard
- i. Scorer's watch

Personnel Requirements

- a. One scorer with 16P MOS
- b. One examinee with 16P MOS

Pretest Preparation

- a. Environment: Outdoors or indoors (with at least 50 feet of separation) on a level surface, in daylight, no precipitation, 30°-90°F.
- b. Test Layout
  - (1) Scorer's Telephone: One operational field telephone TA-312/PT (with batteries) properly installed with at least 50 feet of field wire WD-1/TT attached and strung out to the test telephone. The wire ends at the test telephone should not be stripped.
  - (2) Test Telephone: One operational field telephone TA-312/PT without case or batteries at least 50 feet from the installed TA-312/PT.

- (3) Pliers TL-13A, Batteries BA-30, Screwdriver, and TM 11-5805-201-12 present at the TEST TELEPHONE.
- (4) On the SCORER'S TELEPHONE, set controls as follows:  
LOW-LOUD control set to LOW  
Selector switch set to LB  
EXT-INT switch set to INT
- (5) On the TEST TELEPHONE, set the controls as follows:  
LOW-LOUD control set to LOW  
Selector switch set to CB  
EXT-INT switch set to EXT
- (6) Police-up insulation clippings before each test.

## TEST NO. 5

## SCORESHEET FOR THE OPERATIONAL CHECKS ON THE TA-312/PT TELEPHONE SET

Instructions to Examinee. The scorer will read these exact words aloud: "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO INSTALL AND OPERATE THE FIELD TELEPHONE TA-312/PT ACCORDING TO TM 11-5805-201-12, PARAGRAPHS 2-3A, C, D, AND F TO INSTALL THE TA-312/PT. YOU WILL USE PARAGRAPH 3-2C (LB OPERATION) TO OPERATE THE TELEPHONE." (Note: Scorer opens TM 11-5805-201-12 to paragraph 2-3A for the examinee.) "YOU MUST USE THE PROCEDURES IN THE TECH MANUAL TO PERFORM THIS TASK. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST WITHIN 10 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step | Performance Measures (Sequence not Scored)                           | PASS  | FAIL  | REFRESHER TRAINING     |
|------|--|-------|-------|------------------------|
| 1.   | Strips insulation from ends of two wires.                            | _____ | _____ | Demonstration/Practice |
| 2.   | Connects wires to telephone set.                                     | _____ | _____ | "                      |
| 3.   | Installs batteries correctly   | _____ | _____ | "                      |
| 4.   | Sets INT-EXT switch to INT.  | _____ | _____ | "                      |
| 5.   | Sets CB, LB, CBS switch to LB.                                       | _____ | _____ | "                      |
| 6.   | Correctly rings distant station.                                     | _____ | _____ | "                      |
| 7.   | Removes handset from cradle and waits for distant station to answer. | _____ | _____ | "                      |
| 8.   | Has telephone conversation with distant station.                     | _____ | _____ | "                      |
| 9.   | Terminates call correctly.   | _____ | _____ | "                      |
| 10.  | Examinee completed steps 1-9 within 10 minutes.                      | _____ | _____ | Practice               |

Scorer's Note: Score the examinee a GO on the Testing Record for Test No. 5 if he PASSES all performance measures. If he fails one or more performance measures, he must receive the indicated refresher training, and then be given this complete test again. Record on the scoresheet any additional information about FAILED items that you feel will help you to provide the best refresher training. Record the total number of items PASSED and FAILED. Record elapsed time from beginning to end of test. Circle on each page the refresher training you must provide before he is retested.

### Step      Performance Measures (Sequence not Scored)

|      |                    |
|------|--------------------|
| PASS | REFRESHER TRAINING |
| FAIL |                    |

TOTAL SCORE: PASS FAIL  
ELAPSED TIME: Minutes  
SCORER'S NAME: \_\_\_\_\_

79

TEST NO. 6

SCORER'S INSTRUCTIONS

EMPLACEMENT AND OPERATOR CHECKS AND ADJUSTMENTS  
ON THE TARGET ALERT DATA DISPLAY SET AN/GSQ-137 (X0-2)

Objective

To measure the examinee's ability to perform emplacement and operator checks and adjustments on the TADDS, AN/GSQ-137, contained in TM 9-1430-589-12, Paragraphs 3-4 thru 3-6 (Emplacement), 5-3 and 5-4 (Self-Test), and 3-15 (March order).

Equipment Requirements

- a. Target Alert Data Display Set AN/GSQ-137 (X0-2)
- b. TM 9-1430-589-12
- c. Scorer's clipboard
- d. Scorer's ballpoint pen
- e. Scorer's watch

Personnel Requirements

- a. One scorer with 16P MOS
- b. One examinee with 16P MOS

Pretest Preparation

- a. Environment: Outdoors or indoors on level surface, in daylight, no precipitation, 30°-90°F.
- b. Test Layout
  - (1) Insure that the TADDS is operational and all component parts are present.
  - (2) Set the TADDS controls as follows:

FREQUENCY MHz switches to 30.00 MHz.

VOL control fully counterclockwise.

ADDRESS CODE selector to 4.

PWR switch to OFF.

AUDIO ALARM switch to OFF.

AUDIO ALARM VOL control fully counterclockwise.

## TEST NO. 6

## SCORESHEET FOR THE EMPLACEMENT AND OPERATOR CHECKS ON THE TARGET ALERT DATA DISPLAY SET AN/GSQ-137 (XO-2)

Instructions to Examinee. The scorer will read these exact words aloud. "LET ME HAVE YOUR ATTENTION. YOUR TASK AT THIS STATION IS TO EMLPLACE AND PERFORM OPERATOR CHECK AND ADJUSTMENTS ON THE TADDS ACCORDING TO TM 9-1430-589-12. FOR THE EMLPLACEMENT YOU WILL USE PARAGRAPHS 3-4 THRU 3-6. NOTE: YOU WILL USE THE COMPASS IN THE TADDS COVER FOR THIS PART OF THE TEST. TO PERFORM OPERATOR CHECKS YOU WILL USE PARAGRAPHS 5-3 AND 5-4 TO INCLUDE STEPS 1 THRU 4 OF TABLE 5-1." (Note: Scorer will open TM 9-1430-589-12 to page 3-1, paragraph 3-4 for the examinee.) "IF THE PROCEDURE TELLS YOU TO CHECK OR SET A SWITCH OR CONTROL, YOU MUST TOUCH THAT SWITCH OR CONTROL, EVEN IF YOU DO NOT HAVE TO CHANGE ITS POSITION, TO RECEIVE CREDIT FOR PERFORMING THAT STEP OF THE PROCEDURE. BY TOUCHING THE CONTROLS AND SWITCHES, YOU WILL BE SHOWING THE SCORER YOU KNOW THE LOCATION OF THE CONTROLS AND SWITCHES. OBSERVE ALL SAFETY WARNINGS AND CAUTIONS. YOU MUST USE THE PROCEDURES IN THE TECH MANUAL TO PERFORM THIS TASK. ALL EQUIPMENT REQUIRED HAS BEEN CHECKED AND IS IN GOOD WORKING CONDITION. YOU SHOULD COMPLETE THIS TEST WITHIN 15 MINUTES." (Pause) "DO YOU UNDERSTAND THE INSTRUCTIONS?" If the examinee does not understand, repeat the instructions word for word. If the examinee still does not understand, say, "DO THE BEST YOU CAN."

| Step                           | Performance Measures (Sequence is Scored)   | PASS | FAIL | REFRESHER TRAINING   |
|--------------------------------|---|------|------|--|
| 1.                             | Performs orientation of the TADDS. Using compass in the cover, rotates until arrow aligns with north line.  | —    | —    | TEC LESSON NO. 043-441-1015F, plus at least one supervised practice run. |
| 2.                             | Correctly installs antenna using correct number of sections for frequency assigned. (Scorer tells the examinee to use 42.85 MHz with address code 8). | —    | —    | "  |
| 3.                             | QUESTION: When should you install the ground plane antenna?<br>ANSWER: It's only necessary in a dry climate.  | —    | —    | "  |
| PERFORM BATTERY VOLTAGE CHECK. |   |      |      |  |
| 4.                             | Sets the PWR switch to ON.  | —    | —    | TEC LESSON NO. 043-441-1016F, plus at least one supervised practice run. |
| 5.                             | Sets and holds BAT. AND RESET/SELF TEST switch to BAT. AND RESET.   | —    | —    | "  |
| 6.                             | Checks that SIG AND BAT. meter indicates between 0.5 and 0.7  | —    | —    | "  |
| 7.                             | Releases BAT. AND RESET/SELF TEST switch.   | —    | —    | "  |

| <u>Step</u> | <u>Performance Measures (Sequence is Scored)</u>  | <u>PASS</u> | <u>FAIL</u> | <u>REFRESHER TRAINING</u>  |
|-------------|---|-------------|-------------|--|
| 8.          | Sets PWR switch to OFF.   | —           | —           | TEC LESSON NO. 043-441-1016F, plus at least one supervised practice run. |
| 9.          | <u>QUESTION:</u> If the battery voltage check results in a SIG AND BAT. meter indication of 0.63, what should be done?<br><u>ANSWER:</u> The battery voltage check should be performed periodically during operation. | —           | —           | "  |
|             | POSITIONS SWITCHES FOR DATA LINK PROCESSOR DISPLAY SELF TEST CHECK IN ACCORDANCE WITH PARAGRAPH 5-4.  |             |             |  |
| 10.         | Sets PWR switch to OFF.   | —           | —           | Demonstration/Practice   |
| 11.         | Sets VOL control fully clockwise.   | —           | —           | Demonstration/Practice   |
| 12.         | Sets AUDIO ALARM switch to READY.   | —           | —           | Demonstration/Practice   |
| 13.         | Sets AUDIO ALARM VOL control fully clockwise.   | —           | —           | Demonstration/Practice   |
|             | PERFORMS STEPS 1 THRU 4 OF TABLE 5-1.   |             |             |  |
| 14.         | Sets PWR switch on.   | —           | —           | Demonstration/Practice   |
| 15.         | Sets BAT. AND RESET/SELF TEST switch to SELF TEST position and releases.  | —           | —           | Demonstration/Practice   |
|             | OBSERVES RESPONSE TO TADS INDICATORS. EXAMINEE REPEATS TEST UNTIL HE VERIFIES NORMAL INDICATION LISTED IN TABLE.  |             |             |  |
| 16.         | Observes friend/foe indicators on display matrix.   | —           | —           | Review Table 5-1, using student handout                                  |
| 17.         | Observes DATA INPUT indicator (Black between steps).  | —           | —           | "  |
| 18.         | Listens for correct audio alarm sequence.   | —           | —           | "  |

| Step  | Performance Measures (Sequence is Scored)  | PASS | FAIL | REFRESHER TRAINING                      |
|-------|--|------|------|---|
| 19.   | Observes NEW DATA indicator (Black between steps and momentarily orange).  | ____ | ____ | Review Table 5-1, using student handout |
| 20.   | <u>QUESTION:</u> If the audio alarm sounds two alarm beeps immediately before step a. (4) of Table 5-1, would you say this is a normal or abnormal indication?<br><u>ANSWER:</u> Abnormal. | ____ | ____ | "                                       |
| 21.   | Sets PWR switch to OFF.  | ____ | ____ | Demonstration/Practice                  |
| NOTE: | SCORER INFORMS EXAMINEE TO MARCH ORDER THE TADDS.  | ____ | ____ |   |
| 22.   | Disconnects antenna and adapter, and replaces in the TADDS cover.  | ____ | ____ | Demonstration/Practice                  |
| 23.   | Replaces ground plane wires.   | ____ | ____ | Demonstration/Practice                  |
| 24.   | Closes the cover.  | ____ | ____ | Demonstration/Practice                  |
| 25.   | Examinee completes the test within 15 minutes.   | ____ | ____ | Practice to time criterion              |

Scorer's Note: Score the examinee a GO on the Testing Record for Test NO. 6 if he PASSES all performance measures. If he fails one or more performance measures, he must receive the indicated refresher training, and then be given this complete test again. Record on the scoresheet any additional information about FAILED items that you feel will help you to provide the best refresher training. Record the total number of items PASSED and FAILED. Record elapsed time from beginning to end of test. Circle on each page the refresher training you must provide before he is retested.

TOTAL SCORE: PASS \_\_\_\_ FAIL \_\_\_\_  
 ELAPSED TIME: \_\_\_\_ Minutes  
 SCORER'S NAME: \_\_\_\_\_

## DISTRIBUTION

### ARI Distribution List

4 OASD (M&RA)  
 2 HODA (DAMI-CSZ)  
 1 HODA (DAPE-PBR)  
 1 HODA (DAMA-ARI)  
 1 HODA (DAPE-HRE-PO)  
 1 HODA (SGRD-ID)  
 1 HODA (DAMI-DOT-C)  
 1 HODA (DAPC-PMZ-A)  
 1 HODA (DACH-PPZ-A)  
 1 HODA (DAPE-HRE)  
 1 HODA (DAPE-MPO-C)  
 1 HODA (DAPE-DW)  
 1 HODA (DAPE-HRL)  
 1 HODA (DAPE-CPS)  
 1 HODA (DAFD-MFA)  
 1 HODA (DARD-ARS-P)  
 1 HODA (DAPC-PAS-A)  
 1 HODA (DUSA-OR)  
 1 HODA (DAMO-RQR)  
 1 HODA (DASG)  
 1 HODA (DA10-PI)  
 1 Chief, Consult Div (DA-OTSG), Adelphi, MD  
 1 Mil Asst. Hum Res, ODDR&E, OAD (E&LS)  
 1 HQ USARAL, APO Seattle, ATTN: ARAGP-R  
 1 HQ First Army, ATTN: AFKA-OI-TI  
 2 HQ Fifth Army, Ft Sam Houston  
 1 Dir, Army Stf Studies Ofc, ATTN: OAVCSA (DSP)  
 1 Ofc Chief of Stf, Studies Ofc  
 1 DCSPER, ATTN: CPS/OCP  
 1 The Army Lib, Pentagon, ATTN: RSB Chief  
 1 The Army Lib, Pentagon, ATTN: ANRAL  
 1 Ofc, Asst Sect of the Army (R&D)  
 1 Tech Support Ofc, OJCS  
 1 USAUSA, Arlington, ATTN: IARD-T  
 1 USA Rsch Ofc, Durham, ATTN: Life Sciences Dir  
 2 USARIEM, Natick, ATTN: SGRD-UE-CA  
 1 USATTC, Ft Clayton, ATTN: STETC-MO-A  
 1 USAIMA, Ft Bragg, ATTN: ATSU-CTD-OM  
 1 USAIMA, Ft Bragg, ATTN: Wernau Lib  
 1 US WAC Ctr & Sch, Ft McClellan, ATTN: Lib  
 1 US WAC Ctr & Sch, Ft McClellan, ATTN: Tng Dir  
 1 USA Quartermaster Sch, Ft Lee, ATTN: ATSM-TE  
 1 Intelligence Material Dev Ofc, EWL, Ft Holabird  
 1 USA SE Signal Sch, Ft Gordon, ATTN: ATSO-EA  
 1 USA Chaplain Ctr & Sch, Ft Hamilton, ATTN: ATSC-TE-RD  
 1 USATSC, Ft Eustis, ATTN: Educ Advisor  
 1 USA War College, Carlisle Barracks, ATTN: Lib  
 2 WRAIR, Neuropsychiatry Div  
 1 DLI, SDA, Monterey  
 1 USA Concept Anal Agcy, Bethesda, ATTN: MOCA-MR  
 1 USA Concept Anal Agcy, Bethesda, ATTN: MOCA-JF  
 1 USA Arctic Test Ctr, APO Seattle, ATTN: STEAC-PL-MI  
 1 USA Arctic Test Ctr, APO Seattle, ATTN: AMSTE-PL-TS  
 1 USA Armament Cmd, Redstone Arsenal, ATTN: ATSK-TEM  
 1 USA Armament Cmd, Rock Island, ATTN: AMSAR-TDC  
 1 FAA-NAFEC, Atlantic City, ATTN: Library  
 1 FAA-NAFEC, Atlantic City, ATTN: Hum Engr Br  
 1 FAA Aeronautical Ctr, Oklahoma City, ATTN: AAQ-44D  
 2 USA Fid Arty Sch, Ft Sill, ATTN: Library  
 1 USA Armor Sch, Ft Knox, ATTN: Library  
 1 USA Armor Sch, Ft Knox, ATTN: ATSB-DI-E  
 1 USA Armor Sch, Ft Knox, ATTN: ATSB-DT-TP  
 1 USA Armor Sch, Ft Knox, ATTN: ATSB-CD-AD  
 2 HQUSACDEC, Ft Ord, ATTN: Library  
 1 HQUSACDEC, Ft Ord, ATTN: ATFC-EX-E-Hum Factors  
 2 USAEEC, Ft Benjamin Harrison, ATTN: Library  
 1 USAPACDC, Ft Benjamin Harrison, ATTN: ATCP-HR  
 1 USA Comm-Elect Sch, Ft Monmouth, ATTN: ATSN-EA  
 1 USAEC, Ft Monmouth, ATTN: AMSEL-CT-HDP  
 1 USAEC, Ft Monmouth, ATTN: AMSEL-PA-P  
 1 USAEC, Ft Monmouth, ATTN: AMSEL-SI-CB  
 1 USAEC, Ft Monmouth, ATTN: C, Fac Dev Br  
 1 USA Materials Sys Anal Agcy, Aberdeen, ATTN: AMXSY-P  
 1 Edgewood Arsenal, Aberdeen, ATTN: SAREA-BL-H  
 1 USA Ord Ctr & Sch, Aberdeen, ATTN: ATSL-TEM-C  
 2 USA Hum Engr Lab, Aberdeen, ATTN: Library/Dir  
 1 USA Combat Arms Tng Bd, Ft Benning, ATTN: Ad Supervisor  
 1 USA Infantry Hum Rsch Unit, Ft Benning, ATTN: Chief  
 1 USA Infantry Bd, Ft Benning, ATTN: STEBC-TE-T  
 1 USASMA, Ft Bliss, ATTN: ATSS-LRC  
 1 USA Air Def Sch, Ft Bliss, ATTN: ATSA-CTD-ME  
 1 USA Air Def Sch, Ft Bliss, ATTN: Tech Lib  
 1 USA Air Def Bd, Ft Bliss, ATTN: FILES  
 1 USA Air Def Bd, Ft Bliss, ATTN: STEBD-PO  
 1 USA Cmd & General Stf College, Ft Leavenworth, ATTN: Lib  
 1 USA Cmd & General Stf College, Ft Leavenworth, ATTN: ATSW-SE-L  
 1 USA Cmd & General Stf College, Ft Leavenworth, ATTN: Ed Advisor  
 1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: DepCdr  
 1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: CCS  
 1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: ATCASA  
 1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: ATCACO-E  
 1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: ATCACC-CI  
 1 USAECOM, Night Vision Lab, Ft Belvoir, ATTN: AMSEL-NV-SD  
 3 USA Computer Sys Cmd, Ft Belvoir, ATTN: Tech Library  
 1 USAMERDC, Ft Belvoir, ATTN: STSFB-DQ  
 1 USA Eng Sch, Ft Belvoir, ATTN: Library  
 1 USA Topographic Lab, Ft Belvoir, ATTN: ETL-TD-S  
 1 USA Topographic Lab, Ft Belvoir, ATTN: STINFO Center  
 1 USA Topographic Lab, Ft Belvoir, ATTN: ETL-GSL  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: CTD-MS  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATS-CTD-MS  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-TE  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-TEX-GS  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-CTS-OR  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-CTD-DT  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-CTD-CS  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: DAS/SRD  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-TEM  
 1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: Library  
 1 CDR, HQ Ft Huachuca, ATTN: Tech Ref Div  
 2 CDR, USA Electronic Prvg Grd, ATTN: STEEP-MT-S  
 1 HQ, TCATA, ATTN: Tech Library  
 1 HQ, TCATA, ATTN: AT CAT-OP-Q, Ft Hood  
 1 USA Recruiting Cmd, Ft Sheridan, ATTN: USARCPM-P  
 1 Senior Army Adv., USAFAGOD/TAC, Elgin AF Aux Fld No. 9  
 1 HQ USARPAC, DCSPER, APO SF 96558, ATTN: GPPE-SE  
 1 Stimson Lib, Academy of Health Sciences, Ft Sam Houston  
 1 Marine Corps Inst., ATTN: Dean-MCI  
 1 HQUSMC, Commandant, ATTN: Code MTMT  
 1 HQUSMC, Commandant, ATTN: Code MPI-20-28  
 2 USCG Academy, New London, ATTN: Admission  
 2 USCG Academy, New London, ATTN: Library  
 1 USCG Training Ctr, NY, ATTN: CO  
 1 USCG, Training Ctr, NY, ATTN: Educ Svc Ofc  
 1 USCG, Psychol Res Br, DC, ATTN: GP 1/62  
 1 HQ Mid-Range Br, MC Det, Quantico, ATTN: P&S Div

1 US Marine Corps Liaison Ofc, AMC, Alexandria, ATTN: AMCGS-F  
 1 USATRADOC, Ft Monroe, ATTN: ATRO-ED  
 6 USATRADOC, Ft Monroe, ATTN: ATPR-AD  
 1 USATRADOC, Ft Monroe, ATTN: ATTS-EA  
 1 USA Forces Cmd, Ft McPherson, ATTN: Library  
 2 USA Aviation Test Bd, Ft Rucker, ATTN: STEBG-PO  
 1 USA Agcy for Aviation Safety, Ft Rucker, ATTN: Library  
 1 USA Aviation Sch, Ft Rucker, ATTN: PO Drawer O  
 1 HQUSA Aviation Sys Cmd, St Louis, ATTN: AMSAV-ZDR  
 2 USA Aviation Sys Test Act., Edwards AFB, ATTN: SAVTE-T  
 1 USA Air Def Sch, Ft Bliss, ATTN: ATSA TEM  
 1 USA Air Mobility Rsch & Dev Lab, Moffett Fld, ATTN: SAVDL-AS  
 1 USA Aviation Sch, Res Tng Mgt, Ft Rucker, ATTN: ATST-T-RTM  
 1 USA Aviation Sch, CO, Ft Rucker, ATTN: ATST-D-A  
 1 HQ, DARCOM, Alexandria, ATTN: AMXCD-TL  
 1 HQ, DARCOM, Alexandria, ATTN: CDR  
 1 US Military Academy, West Point, ATTN: Serials Unit  
 1 US Military Academy, West Point, ATTN: Ofc of Milt Ldrshp  
 1 US Military Academy, West Point, ATTN: MAOR  
 1 USA Standardization Gp, UK, FPO NY, ATTN: MASE-GC  
 1 Ofc of Naval Rsch, Arlington, ATTN: Code 452  
 3 Ofc of Naval Rsch, Arlington, ATTN: Code 458  
 1 Ofc of Naval Rsch, Arlington, ATTN: Code 450  
 1 Ofc of Naval Rsch, Arlington, ATTN: Code 441  
 1 Naval Aerospc Med Res Lab, Pensacola, ATTN: Acous Sch Div  
 1 Naval Aerospc Med Res Lab, Pensacola, ATTN: Code L51  
 1 Naval Aerospc Med Res Lab, Pensacola, ATTN: Code L5  
 1 Chief of NavPers, ATTN: Pers-OR  
 1 NAVAIRSTA, Norfolk, ATTN: Safety Ctr  
 1 Nav Oceanographic, DC, ATTN: Code 8251, Charts & Tech  
 1 Center of Naval Anal, ATTN: Doc Ctr  
 1 NavAirSysCom, ATTN: AIR-5313C  
 1 NavBuMed, ATTN: 713  
 1 NavHelicopterSubSquad 2, FPO SF 96801  
 1 AFHRL (FT) William AFB  
 1 AFHRL (TT) Lowry AFB  
 1 AFHRL (AS) WPAFB, OH  
 2 AFHRL (DOJZ) Brooks AFB  
 1 AFHRL (DOJN) Lackland AFB  
 1 HQUSAFA (INYSD)  
 1 HQUSAFA (DPXXA)  
 1 AFVTG (RD) Randolph AFB  
 3 AMRL (HE) WPAFB, OH  
 2 AF Inst of Tech, WPAFB, OH, ATTN: ENE/SL  
 1 ATC (XPTD) Randolph AFB  
 1 USAF AeroMed Lib, Brooks AFB (SUL-4), ATTN: DOC SEC  
 1 AFCSR (NL), Arlington  
 1 AF Log Cmd, McClellan AFB, ATTN: ALC/DPCRB  
 1 Air Force Academy, CO, ATTN: Dept of Bel Scn  
 5 NavPers & Dev Ctr, San Diego  
 2 Navy Med Neuropsychiatric Rsch Unit, San Diego  
 1 Nav Electronic Lab, San Diego, ATTN: Res Lab  
 1 Nav TrngCen, San Diego, ATTN: Code 9000-Lib  
 1 NavPostGraSch, Monterey, ATTN: Code 55Aa  
 1 NavPostGraSch, Monterey, ATTN: Code 2124  
 1 NavTrngEquipCtr, Orlando, ATTN: Tech Lib  
 1 US Dept of Labor, DC, ATTN: Manpower Admin  
 1 US Dept of Justice, DC, ATTN: Drug Enforce Admin  
 1 Nat Bur of Standards, DC, ATTN: Computer Info Section  
 1 Nat Clearing House for MH-Info, Rockville  
 1 Denver Federal Ctr, Lakewood, ATTN: BLM  
 12 Defense Documentation Center  
 4 Dir Psych, Army Hq, Russell Ofcs, Canberra  
 1 Scientific Advisr, Mil Bd, Army Hq, Russell Ofcs, Canberra  
 1 Mil and Air Attaché, Austrian Embassy  
 1 Centre de Recherche Des Facteurs, Humaine de la Defense Nationale, Brussels  
 2 Canadian Joint Staff Washington  
 1 C/Air Staff, Royal Canadian AF, ATTN: Pers Std Anal Br  
 3 Chief, Canadian Def Rsch Staff, ATTN: C/CRDS(W)  
 4 British Def Staff, British Embassy, Washington